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Civil Aeronautics Manual 1

Certification, Identification And Marking of Aircraft and Related Products



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Introductory Note

Civil Aeronautics Manuals are published by the Civil Aeronautics Administration to supplement and explain the Civil Air Regulations. This manual contains rules, policies, and interpretations of the Administrator of Civil Aeronautics which pertain to the current requirements of Part 1 of the Regulations of the Civil Aeronautics Board, as amended to August 25, 1955. This manual will be revised from time to time as a result of amendments to Part 1, and as new manual material is found necessary to keep the public informed on acceptable means of showing compliance with the requirements of Part 1.

CAA *rules* are issued pursuant to authority conferred upon the Administrator in the Civil Air Regulations. Such rules are mandatory and must be complied with.

CAA *interpretations* define or explain words and phrases of the Civil Air Regulations. Such interpretations are for the guidance of the public and will be followed by the Administration in determining compliance with the regulations.

CAA *policies* provide recommended methods of complying with the Civil Air Regulations. Such policies are for the guidance of the public and are not mandatory in nature.

The Administrator's rules, interpretations, and policies set forth acceptable procedures and practices for the guidance of the public in complying with the regulations. Other methods or practices which provide equivalent safety to those specified by the Administrator will also be acceptable. Any provisions which are shown to be inapplicable in a particular case may be modified upon request.

The Table of Contents is arranged to show the title and number of each section of the regulations. CAA rules, policies or interpretations follow the pertinent section of the regulations and are identified by consecutive dash numbers appended to the regulation section number.

The text of this manual is arranged to set forth in bold type each numbered section of the Civil Air Regulations followed by related rules, policies, or interpretations of the Administrator. The Administrator's sections pertaining to a particular section of the Board's regulations are identified by consecutive dash numbers appended to the regulation section numbers. Thus section 1.0 means section 1.0 of the Civil Air Regulations, and section 1.0-2 means the second of the Administrator's sections under section 1.0.

This manual outlines the standard procedures for type, production, and airworthiness certification, and for the display of nationality and registration markings. Manufacturers utilizing the delegation option system as provided for in Part 410 of the Regulations of the Administrator will be guided by the rules, policies, and interpretations contained herein, except in those instances wherein regulations provided in Part 410 are at variance with procedures contained in this manual.

Civil Aeronautics Manuals and supplements thereto are published in the Federal Register which in turn is codified in the Code of Federal Regulations

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Certification, Identification, and Marking of Aircraft and Related Products

Applicability and Definitions

1.0 *Applicability of this part.* This part establishes administrative requirements for the issuance of type, production, and airworthiness certificates, and for the identification and marking of aircraft and related products.

1.1 *Definitions.* As used in this part, terms are defined as follows:

(a) *Administration.*

(1) *Administrator.* The Administrator is the Administrator of Civil Aeronautics.

(2) *Applicant.* An applicant is a person or persons applying for approval of an aircraft or any part thereof.

(3) *Approved.* Approved, when used alone or as modifying terms such as means, devices, specifications, etc., shall mean approved by the Administrator.

(4) *Authorized representative of the Administrator.* An authorized representative of the Administrator means any employee of the Civil Aeronautics Administration or any private person, authorized by the Administrator to perform any of the duties delegated to the Administrator by the provisions of this part.

(5) *Person.* Person means any individual, firm, copartnership, corporation, company, association, joint-stock association, or body politic; and includes any trustee, receiver, assignee, or other similar representative thereof.¹

(6) *Prime manufacturer.* A prime manufacturer means the person who initiated the design and construction of the product and who applied for the type certificate, or any person to whom a current right to reproduce the product has been transferred.

(7) *Subsidiary manufacturer.* A subsidiary manufacturer means the person who contracted with the prime manufacturer to produce and to supply to the prime manufacturer major assemblies and components which are manufactured in conformity with the prime manufacturer's approved drawings and data for the fabrication of the product.

(8) *United States.* United States means the several States, the District of Columbia, and the several Territories and possessions of the United States, including the Territorial waters and the overlying air space thereof.¹

(b) *Design.*

(1) *Aircraft.* An aircraft means any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air.¹

(2) *Aircraft engine.* An aircraft engine means an engine used, or intended to be used, for propulsion of aircraft and includes all parts, appurtenances, and accessories thereof other than propellers.¹

(3) *Appliances.* Appliances mean instruments, equipment, apparatus, parts, appurtenances, or accessories, of whatever description, which are used, or are capable of being or intended to be used, in the navigation, operation, or control of aircraft in flight (including parachutes and including communication equipment and any other mechanism or mechanisms installed in or attached to aircraft during flight), and which are not a part or parts of aircraft, aircraft engines, or propellers.¹

(4) *Product.* The term product, as used in this part, means: (i) An aircraft, (ii) an aircraft engine, (iii) a propeller, or (iv) any appliance specified in this subchapter (the Civil Air Regulations) as eligible for a type certificate.

¹ As defined in section 1 of the Civil Aeronautics Act of 1938, as amended.

1.12-1 *Requirements for issuance of type certificates (CAA policies which apply to sec. 1.12).*

(a) The requirements for the issuance of a type certificate for a product may be found in the following parts of the Civil Air Regulations:

- (1) Part 3. Airplane Airworthiness Normal, Utility, and Acrobatic Categories.
- (2) Part 4b. Airplane Airworthiness Transport Categories.
- (3) Part 5. Glider Airworthiness.
- (4) Part 6. Rotorcraft Airworthiness.
- (5) Part 8. Aircraft Airworthiness Restricted Category.
- (6) Part 9. Aircraft Airworthiness Limited Category.
- (7) Part 10. Certification and approval of Imported Aircraft and Related Products.
- (8) Part 13. Aircraft Engine Airworthiness.
- (9) Part 14. Aircraft Propeller Airworthiness.
- (10) Part 16. Aircraft Radio Equipment Airworthiness.

1.12-2 *Inspection of prototype (CAA policies which apply to sec. 1.15-1 (b)).*

The inspections set forth in section 1.15-1 (a) will apply to the product for which a type certificate is requested.

1.13 Location of manufacturing facilities. No type certificate for a product shall be issued if the manufacturing facilities therefor are located outside the United States unless where facilities are located outside the United States the Administrator finds that no undue burden on the Government is created in administering applicable requirements of the act or regulations issued thereunder.

1.14 Transferability. A type certificate may be transferred or made available to third persons by licensing agreements, and the grantor shall immediately notify the Administrator in writing of any transfer, licensing agreement, or termination thereof. The provisions of section 1.13 shall be complied with.

1.14-1 *Transferability (CAA interpretations which apply to sec. 1.14).*

(a) The CAA and the manufacturer to whom

the type certificate is issued are the first and second persons involved, and any other person to whom the type certificate holder may transfer privileges incidental to the type certificate is the "third person."

1.15 Inspections and tests.

(a) A representative of the Administrator shall be permitted to make such inspections and, in the case of aircraft, flight tests as may be necessary to determine compliance with applicable requirements.

(b) A product manufactured under a type certificate only shall be required to undergo inspection by a representative of the Administrator to determine whether individual products conform with the type design.

(c) The manufacturer of a product being manufactured under a type certificate only shall maintain at the place of manufacture such technical data and drawings as may be necessary to determine whether the product or any part thereof conforms to the current type design.

(d) A manufacturer producing a product under the terms of a type certificate without a related production certificate shall provide, for products manufactured after six months from the date of issuance of the type certificate, a production inspection system approved by the Administrator which will give assurance that each article produced is in conformity with the type design and is in a condition for safe operation.

1.15-1 *Inspections and tests (CAA policies which apply to sec. 1.15).*

(a) *Prototype inspection.* Each product presented for type certification will be subjected to such conformity inspections, investigations of the workmanship and fabrication processes, and the witnessing of such structural endurance and operational tests as may be deemed necessary by the Civil Aeronautics Administration to assure that the product meets applicable requirements and is eligible for a type certificate. The inspection of test articles and the prototype will be conducted after acceptance by the manufacturer's inspectors.²

² The CAA inspections are not intended to duplicate the manufacturer's inspections, but rather to verify the effectiveness and accuracy of his inspections. The CAA verification will consist of sampling inspections such as witnessing certain inspections and tests conducted by the manufacturer.

to assure conformity, compliance, and acceptability of materials and workmanship.

(c) *Evidence of inspection approval.* When products, or major components, other than complete aircraft or communication equipment, are manufactured under the terms of a type certificate only, the CAA representative, having determined by inspection that the product or component is acceptable, will prepare and attach thereto, an Approval Tag, Form ACA-186. This tag will show the make, model, and serial number of the product, and will be signed by the CAA representative.

1.15-2 *Production test flight authorization (CAA policies which apply to sec. 1.15).*

(a) To facilitate compliance by manufacturers with related provisions of section 43.10, the reverse side of the Dealer's Aircraft Registration Certificate, Form ACA-1707, will be used to provide flight authorization for production flight testing prior to the initial issuance of individual airworthiness certificates.⁴ This flight authorization is provided for the convenience of manufacturers, and has no connection with the issuance, validity, or continuation of the Dealer's Aircraft Registration Certificate. The flight authorization is limited to production test flights, and does not provide for prototype or experimental flight testing. The flight authorization will be issued at the time the Dealer's Aircraft Registration Certificate is issued. The Application for Dealer's Aircraft Registration Certificate(s), Form ACA-1706, contains a section for the use of manufacturers in applying for authorization to conduct production flight tests.

(b) Aircraft to be flown for production flight tests, which are intended for U. S. registration and certification, are required to display the appropriate U. S. identification markings in accordance with sections 1.100 through 1.108.

(c) New aircraft intended for export should display the appropriate foreign identification markings during the production flight testing.

⁴ A new aircraft, in which a manufacturer's special Flight Authorization, Form ACA-1707, is displayed, may be given a production flight test subject to the following operations limitations which are specified on such form:

Flights, except takeoffs and landings, prohibited over thickly populated areas or large gatherings of people. No flight shall be conducted for hire or reward. Cross-country flights prohibited. Occupancy of the aircraft restricted to personnel essential to the purpose of the flights.

If these markings are not available, the aircraft may display temporarily assigned U. S. identification markings.

1.15-3 *Logging of production aircraft flight test time (CAA policies which apply to sec. 1.15 (d)).*

(a) Production flight test time⁵ will be recorded on the flight test check-off form. It need not be made a part of the aircraft or aircraft engine logbooks.

1.15-4 *Production inspection system (CAA rules which apply to sec. 1.15 (d)).*

(a) *General.* The production inspection system established in compliance with section 1.15 shall thereafter be maintained to assure that parts, assemblies, and the completed products are in conformity with approved type design data and are in condition for safe operation. The inspection system established shall be adequate to preclude the installation of unacceptable materials and parts in the finished product. (Statistical quality control procedures may be employed where it is shown that a satisfactory level of quality will be maintained for the particular materials or parts involved.)

(b) *Materials review.* The production inspection system shall include materials review procedures and a Materials Review Board to process parts and materials withheld because of departure from design data or specifications, but which may be serviceable, when such withheld items are to be considered for installation in the product. (See secs. 1.34-2 (a) (5) and (6) for procedures.) The Materials Review Board shall consist at least of representatives from the inspection and engineering departments. Parts and materials which are determined by the Materials Review Board to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Parts or materials rejected by the Materials Review Board, or by inspection, shall be marked accordingly and disposed of in a manner which will prevent such parts and materials from being incorporated in the finished product.

(c) *Inspection records.* Adequate inspection records shall be maintained, identified with the

⁵ All other flight test time, including accelerated service flight testing of prototype or modified aircraft after airworthiness certification, must be recorded in accordance with section 43.23 of this subchapter.

fore being incorporated in the finished product.

(h) That rejected materials and parts are segregated and identified in such a manner as to preclude installation in the finished product.

(i) That materials and parts withheld because of departures from design data or specifications, which are to be considered for installation in the finished product, are processed through established materials review procedures (see sec. 1.15-4 (b)).

(j) That inspection records are maintained (see sec. 1.15-4 (c)).

(k) That an acceptable flight test procedure and flight test check-off list are provided in the case of aircraft (see sec. 1.15-4 (d)).

1.15-6 Surveillance of production inspection system (CAA policies which apply to sec. 1.15 (d)).

(a) During the 6-month interval, pending the establishment of the manufacturer's production inspection system, the CAA will conduct inspections to ascertain that the finished product is in conformity with the type design data, is airworthy, safe for installation on certificated aircraft, or, in the case of aircraft, is eligible for an airworthiness certificate.

(b) Materials review dispositions will be spot checked by a representative of the administrator to verify that no obvious adverse effect will result from such dispositions.

(c) At the end of the 6-month interval, the CAA will advise the manufacturer whether the inspection system is considered acceptable. If considered acceptable, as determined by evaluating the results of the system as reflected in the conformity, quality, and airworthiness of the finished products, the CAA will thereafter reduce its inspection surveillance and increase its reliance on the manufacturer's inspection system in the determination of the airworthiness of future products.

(1) Upon approval of the production inspection system, the manufacturer may nominate one or more of his employees for appointment as a Designated Manufacturing Inspection Representative, in accordance with Part 418 of chapter II of this title (Regulations of the Administrator). If the nominee meets the requirements for appointment, he will be authorized by the CAA to issue original airworthiness and/or export certificates for the

products produced which are found to conform with the approved type design data; to conduct station and conformity inspections; and to make such additional examinations as may be necessary to ascertain that production articles are airworthy and safe for operation. Such authorization is limited to the manufacturing plant in which the designee is employed.

(d) If the inspection system is not acceptable, as evidenced by questionable parts and materials accepted for installation in the finished product, or significant discrepancies are repeatedly found in the finished products, the issuance of airworthiness certificates for aircraft, or approvals of other products for installation on an aircraft, will be deferred until the manufacturer has made necessary corrective changes.

1.16 Duration. A type certificate shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Board.

1.17 Display. Type certificates shall be made available for examination by an authorized representative of the Board or of the Administrator.

1.18 Privileges. The holder or licensee of a type certificate for a product may, in the case of aircraft, obtain airworthiness certificates (see applicable secs. 1.60 through 1.72), or in the case of engines, propellers, or other products, obtain approval for installation on certificated aircraft; he may obtain a production certificate for such products (see secs. 1.30 through 1.46).

1.19 Statement of conformity.

(a) The holder of a type certificate only or of a current right to the benefits of a type certificate only under a licensing arrangement, upon the initial transfer by him of the ownership of any product manufactured under such type certificate or upon application for original issuance of an airworthiness certificate for an aircraft, shall furnish to an authorized representative of the Administrator a statement of conformity for such product on a form prescribed by the Administrator. For aircraft manufactured under a type certificate only, there shall be included a statement that the aircraft referred to has been flight checked. For aircraft

operators of products previously certificated under such type certificate.

(b) Where no current unsafe condition exists but the Administrator or the holder of the type certificate finds through service experience that changes in type design will contribute to the safety of the product, the holder of the type certificate may submit appropriate design changes for the approval of the Administrator. Upon approval of such changes the manufacturer shall make available to all operators of the same type of product information on the design changes.

Supplemental Type Certificates

1.25 Supplemental type certificates.

When a person, other than the holder of the type certificate for a product, alters the product by introducing a major change (see sec. 1.21) in a previously approved type design, and the change is not so extensive as to require application for a new type certificate (see secs. 3.11 (e), 4b.11 (e), 5.11 (e), 6.11 (e), 13.11 (e), and 14.11 (e) of this chapter), such person shall apply for the issuance of a supplemental type certificate covering the design change. The application shall be made upon a form and in a manner prescribed by the Administrator.

1.25-1 *Application for a supplemental type certificate (CAA policies which apply to sec. 1.25).*

(a) *Applicant.* A supplemental type certificate may be issued to more than one applicant for the same design change⁷ provided each applicant shows compliance with the applicable airworthiness requirements in accordance with section 1.26. (See sec. 1.28-1.)

(b) *Form and manner of application.* The applicant should complete three copies of Form ACA-2417 and submit them to the local CAA Aviation Safety Agent. The drawings and technical data substantiating compliance with the applicable airworthiness requirements should also be submitted for approval in accordance with section 1.27-1.

⁷ Examples of the types of changes defined in section 1.21 as major design changes are contained in section 18.1-1 of Civil Aeronautics Manual 18. A change in the empty weight or balance is not a major design change unless an increase in the maximum weight, center of gravity limits, or other factors listed in the definition of a major change are also involved.

1.26 *Applicable requirements.* The applicant for a supplemental type certificate shall demonstrate that the altered product meets the airworthiness requirements which are applicable to the product involved (see secs. 3.11 (d), 4b.11 (d), 5.11 (d), 6.11 (d), 13.11 (d), and 14.11 (d) of this chapter).

1.26-1 *Airworthiness requirements (CAA policies which apply to sec. 1.26).*

(a) The methods used to show compliance with the applicable airworthiness requirements⁸ are the same as those used for original type certification; namely, by preparing drawings, stress analysis, and by conducting ground and flight tests and preparing reports thereon. Acceptable methods of showing compliance are outlined in Civil Aeronautics Manuals 3 and 4b.

1.27 *Requirements for issuance.* Upon receipt of an application and a satisfactory demonstration of compliance with the applicable requirements in accordance with sections 1.25 and 1.26, the Administrator shall indicate approval of the change in type design. Such approval together with the previously issued type certificate for the product shall constitute a supplemental type certificate.

1.27-1 *Procedures for obtaining approval (CAA policies which apply to sec. 1.27).* CAA approval of a major change in type design is based upon examination of the supporting data, conducting or reviewing tests, inspection of the altered product, and a finding by the CAA that the applicable requirements are met. Such approval involves two steps:

(a) *Design examination.* Approval of the technical supporting data describing the design change and showing compliance with the applicable airworthiness requirements should be obtained from one of the following:

(1) *A CAA Designated Engineering Representative (DER).* After DER approval of the data, the DER will complete, sign, and send Form ACA-1600 "Statement of Compliance of Aircraft or Aircraft Components with the Civil Air Regulations," to the regional CAA Aircraft Engineering Division. Whereas a DER's authority may be limited to certain areas, the

⁸ Detailed information on the applicable airworthiness requirements used for the original type certification of the product involved may be obtained from the Civil Aeronautics Administration.

tificate. The application for a production certificate shall be made upon a form and in a manner prescribed by the Administrator.

1.30-1 *Application for a production certificate (CAA rules which apply to sec. 1.30).* The applicant for a production certificate¹⁰ shall submit to the appropriate CAA regional office, an application file consisting of the following:

(a) Original and one copy, properly completed, of Application for Production Certificate, Form ACA-332. (This form may be obtained from the local CAA Aviation Safety Agent or the appropriate CAA regional office.) Regional office addresses and the states under their jurisdiction are listed in the appendix to this manual.

(b) One copy of the applicant's quality control data,¹¹ as required by section 1.36.

1.30-2 *Processing application (CAA policies which apply to sec. 1.30).*

(a) Upon receipt of an application file, the CAA will examine it, and, if it is considered satisfactory, establish a Production Certification Board¹² to inspect the applicant's facilities and determine their adequacy for the produc-

¹⁰ The issuance of the production certificate automatically places greater responsibility in the manufacturer and obviates the requirement for a Statement of Conformity, Form ACA-317, for products produced under the terms of a production certificate, whether for domestic or export certification (see sec. 1.35). The production certificate is an indication that all major groups of a company are adequately contributing to the production of a quality product; that the quality control (or inspection) department is employing sound principles and procedures in determining and controlling the quality of raw materials, purchased equipment, detail parts and assemblies throughout all phases of manufacture to assure structural and functional conformity of the completed product to approved type design data.

¹¹ When the holder of a currently effective production certificate applies for extension of the certificate to cover other type certificated products in the same general category, only such additional quality control data as may be necessary to cover those new procedures, methods, or processes required by the new product, need be submitted. If no change is necessary, appropriate notation will be made on the application form. For additional information, see section 1.41-1.

¹² The Production Certification Board reviews the quality control data, establishes procedures for conducting the inspection of the applicant's facilities, advises applicant of any controversial or marginal conditions pertaining to the quality control data, and related regulations, interpretations, and policies governing the issuance and continuation of a production certificate. After the inspection has been conducted, the Board will discuss with the applicant any decisions reached on marginal or controversial items in an effort to arrive at a satisfactory solution.

The Board will also function in special cases of a major nature involving an annual or interim inspection, to determine continued eligibility of the manufacturing facilities under the terms of the production certificate.

tion of duplicates of the product. If the application file is not considered satisfactory, the CAA will request the applicant to furnish additional information or data.

1.31 *Products for which issued.* A production certificate shall be issued only for products for which a type certificate is currently in effect. The applicant shall hold a currently effective type certificate for the product to be manufactured or shall hold a current right to the benefits of such certificate under a licensing agreement.

1.32 *Requirements for issuance.* A person shall be issued a production certificate when the Administrator finds, after examination of the supporting data and after inspection of the organization and production facilities, that the applicant complies with the requirements of sections 1.33 through 1.36.

1.32-1 *Production certification requirements (CAA policies which apply to sec. 1.32).* The provisions set forth in paragraphs (a) through (f) of this section¹³ are the minimums which the manufacturer should have established to be eligible for a production certificate.

(a) *Purchasing.* The purchase orders for raw stock and parts should be based on approved specifications or other information which will assure the receipt of materials and parts that will be suitable for aircraft construction and meet the design requirements for the product. The specifications and other data should be sufficiently detailed and comprehensive to insure procurement of materials and parts of a uniformly high grade, equaling or exceeding the minimum strength properties in the structural design data. The applicant may use parts, components, and assemblies over which he does or does not have design control, which are fabricated by vendors. In either case, the prime manufacturer (applicant) is responsible for the airworthiness of the completed product and all of its components, and he should establish procedures and methods to assure that the completed product will be structurally sound, safe for operation, and in conformity with approved design data. These procedures may provide for vendors' and suppliers' affi-

¹³ The assigned CAA Aviation Safety Agents will use this section as a guide in conducting the factory inspection.

their duties. The applicant should maintain a record of all changes to or deviations from the type design data; these records should be available for ready reference. The system should provide effective means for removal of obsolete information from all locations, and advance approval of deviations, substitutions, etc.

(g) *Quality control.* Additional policies pertaining to the "requirements for issuance" are contained in sections 1.34-1 through 1.34-3.

1.33 Location of manufacturing facilities. No production certificate for a product shall be issued if the manufacturing facilities therefor are located outside the United States, unless where facilities are located outside the United States the Administrator finds that no undue burden on the Government is created in administering applicable requirements of the act or regulations issued thereunder.

1.33-1 *Location of manufacturing facilities (CAA policies which apply to sec. 1.33).*

(a) Subsidiary manufacturers' facilities should be located within the United States, since it is not feasible to conduct the required inspections beyond these limits without placing undue burden on the CAA.

1.34 Quality control. The applicant shall show that he is adequately prepared to manufacture and control the quality of any product for which he requests production certification, so that each article shall conform with the design provisions of the pertinent type certificate. A product manufactured under a production certificate may be required to undergo inspection by a representative of the Administrator to determine whether the individual product conforms to the type design.

1.34-1 *Quality control—general (CAA interpretations which apply to sec. 1.34).*

(a) Section 1.34 is interpreted to mean that the applicant has established and can continue to maintain to the satisfaction of the Administrator an effective quality control system commensurate with the complexity of the type design, fabrication processes, and manufacturing techniques. The system must assure that acceptable quality is maintained throughout all phases of the manufacturing process from the time the materials are received until fabricated

into the completed product, and provide a ready means for detection of significant discrepancies.

(b) The CAA will maintain general surveillance of the manufacturer's quality control system to ascertain that the prime objectives of conformity, airworthiness, and safety are assured.

1.34-2 *Quality control (CAA policies which apply to sec. 1.34).* The prime manufacturer's quality control and/or inspection organization should report to management, independent of the manufacturing division, because of the emphasis on safety and the need for unbiased judgment. The quality control department should recognize, and work to, established schedules, but be free of bias due to production pressure. All phases of inspection and control activity, from receiving raw material to delivery of the finished product, should be under a centralized control. If such an arrangement is not possible because certain departments are engaged in highly specialized work, these departments should operate under a separate inspection system, and their activities should be coordinated under the general supervision of a quality control organization. The same procedure should apply in the case of dispersed or branch facilities of a main organization when inspection activity is divided.

(a) *Inspection.* The inspection system should be so organized that parts and materials will receive appropriate inspection while in an inspectable condition. All parts fabricated by the prime manufacturer or subsidiary manufacturer and appliances obtained from any other source shall receive sufficient inspection to assure conformity with the type design data, pertinent specifications and approved manufacturing standards.

(1) *Statistical methods.* Any statistical sampling plan which provides assurance that the materials and parts incorporated in the finished product meet the prime objectives of conformity with drawings, airworthiness, and safety for operation, will be considered acceptable. Sampling inspection techniques that are employed by the manufacturer to determine the acceptability of materials and parts should be based on a careful analysis of the quality requirements of the product tailored to the individual factory on the basis of this analysis.

dispositions will be reinspected for conformity therewith. Any item accepted after this inspection will thereafter be treated as an approved item.

(d) All items accepted through materials review action will be so identified.

(e) The Materials Review Board should maintain accurate records which will provide at least the following:

(1) Name, part number, date, and quantity of parts involved.

(2) The quantity of parts in the lot or order.

(3) Description of the discrepancy.

(4) The materials review disposition, including rework instructions, if any.

(5) The results of reinspection.

(ii) The Materials Review Board should not accept parts which deviate to the extent that mating is adversely affected. Parts or assemblies involving mating should conform to drawing tolerances to the extent that installation, removal, or replacement may be accomplished without misalignment or damage to other components. In assembling parts under these circumstances, no fabrication operations such as cutting, hammering, bending, prying, or forcing should be permitted, or, when final installation has been completed, the parts should not be temporarily or permanently subjected to deformation or distortion of a nature which would cause any undesirable tensions, compressions, stresses, or strains. Where deviating parts, in themselves, are found acceptable, they must not jeopardize the airworthiness or performance of other parts when installed in the assembly. In general, parts which do not conform with the approved technical data should not be accepted when such parts can be reworked to conform with the approved design data.

(7) *Inspection records.* The manufacturer should maintain adequate records of all inspections and tests performed. Such records as are applicable should be identifiable with the completed product or group of products. These records should be retained in the manufacturer's files for at least two years. All inspection records should be available for review by CAA representatives.

(8) *Inspection status of parts.* The man-

ufacturer should indicate by means of stamps, tags, or other means, whether parts, components, and assemblies are to be accepted, rejected, or withheld for Materials Review Board action. The indication of inspection status may be applied to the individual parts, components, or assemblies; to the container of a group of like parts, components, or assemblies; or, to the shop traveler or routing card for the parts. Materials that are subjected to certain processes, such as heat treat, hardness test, pressure test, X-ray, etc., as required by the drawings or specification, should be identified with a suitable process stamp. Such stamps, which are obliterated by subsequent processing, need not be reapplied if the manufacturer has satisfactory control of the finished parts. All parts inspected and approved should indicate, when practicable, the individual inspector responsible.

(9) *Inspectors required.* The number of inspectors should be sufficient to adequately check all materials, manufacturing processes, and the product to the extent necessary to provide reasonable assurance of conformity, quality, and acceptability of the finished product. Inspection personnel should be vested with sufficient authority to permit them to perform their assigned duties in a manner which will warrant the issuance or continuation of a production certificate, provided other requirements are complied with.

(10) *Inspection tools and testing equipment.* The manufacturer should provide and maintain suitable measuring and testing devices necessary to conduct all phases and types of inspection and tests essential to the continued production of duplicate products. Such devices should be checked at established periods to assure continued accuracy. The manufacturer should establish a schedule of such checks as a portion of his inspection procedure, based on type, purpose, and degree of usage, and should maintain records or other evidence that proper control is being maintained. The tools used by the production department in constructing the part, if used by inspection, should be periodically checked to determine that the results obtained are within approved tolerances and that conformity with approved design data is maintained.

pling technique. Sufficient internal examination of each engine should be accomplished to reasonably ascertain that no unsafe conditions exist.

(iii) Each variable pitch propeller produced under the terms of a production certificate should be subjected to a satisfactory functional test to determine that the propeller will operate properly throughout the normal range of operation, as a final check on its operational characteristics.

1.34-3 Quality control—special procedure (CAA policies which apply to sec. 1.34).

(a) *Standard empty weight and c. g. for production aircraft.* The following procedure applies only to newly manufactured aircraft (except helicopters and transport category aircraft) which are produced under the terms of a production certificate.

(1) Manufacturers desiring to establish an average empty weight and empty c. g., in lieu of actually weighing each aircraft, should prepare a detailed proposal regarding the procedure to be followed. This material should be furnished to the assigned Aviation Safety Agent for approval. Any proposal which will provide an accurate determination of average empty weight and c. g. will be considered acceptable.

(2) The following example outlines an acceptable method for effecting this system.

(i) Actually weigh and determine the empty weight and c. g. of ten aircraft of the model, on the basis of each having the same "basic" equipment of the same weight (s) and same arm (s). Each aircraft may be weighed with its own "special equipment installed, provided the weights and arms of those special equipment items are determined before installation. In such cases the effect of the "special" equipment on empty weight and c. g. should be computed, and adjustments made to determine the basic weight and c. g. position of each individual airplane. If the weight and c. g. of none of these ten airplanes deviate by more than 1 percent or $\frac{1}{2}$ percent MAC, respectively, from the average for the entire ten, then that average may be considered acceptable for subsequent aircraft of identical equipment, subject to the periodic spot check specified in subdivision (ii) of this subparagraph.

(ii) Subsequently, with respect to identical aircraft, weigh an individual aircraft at regular intervals; e. g., each tenth aircraft for the purpose of determining continued accuracy of the initial empty weight and empty c. g. established. If this weighing indicates a variation in empty weight which is in excess of 1 percent of the initially established weight, or a variation in the empty c. g. which exceed one-half percent of the MAC, sufficient identical aircraft should be checked to determine if the change in weight and/or c. g. is chronic. If it is determined to be an isolated case, the actual weight and c. g. shall be utilized for that one airplane. If the change is found to be chronic and consistent, a new average weight should be established in accordance with procedures followed in establishing the initial average empty weight and c. g. conditions.

(3) A weight and balance report is required in connection with each aircraft presented for airworthiness certification. These reports may be computed for aircraft which are not actually weighed, and should be marked "computed." All other reports should be marked "actual."

1.35 Privileges. It shall not be necessary for the holder of a production certificate to furnish a statement of conformity for each of the products produced under the terms of the production certificate. The holder of a production certificate may obtain an airworthiness certificate in the case of aircraft (see sec. 1.67 (a)) and in the case of engines, propellers, or other products may obtain approval for installation on certificated aircraft.

1.35-1 Statement of conformity (CAA policies which apply to sec. 1.35).

(a) The Statement of Conformity, Form ACA-317, also will not be required for a product to be exported, provided the product is produced under the terms of a production certificate.

1.36 Quality control data requirements; prime manufacturer. The applicant shall submit for approval by the Administrator, as evidence of his ability to control the quality of any product for which he requests a production certificate, data describing the inspection and test procedures necessary to insure that each article produced is in con-

to impose an unrealistic burden on the holder of the production certificate by requiring an immediate notification of each and every insignificant change in the operations of the quality control systems as may be necessary on a day to day basis. The intent is to provide current quality control data for the use of the CAA Aviation Safety Agent in the performance of his duties and responsibilities.

1.39 Multiple products. The Administrator may authorize more than one type certificated product to be manufactured under the terms of one production certificate provided that the products have similar production characteristics.

1.39-1 Multiple products (CAA policies which apply to sec. 1.39).

(a) More than one airplane type may be manufactured under the same production certificate, provided the types of construction and processes are similar. However, two basically different products such as an airplane and helicopter or an airplane and an engine will not be included under one production certificate. Separate production certificates will be issued for dissimilar products.

1.40 Production limitation record. A production limitation record shall be issued as part of a production certificate. The record shall list the type certificate of every product which the applicant is authorized to manufacture under the terms of a production certificate. Where different models of a basic type approved under the same type certificate number require different fabrication methods and processes, the Administrator may list the model designation of the product for which authorization is given, as well as the type certificate number, on the production limitation record.

1.40-1 Production limitation record (CAA policies which apply to sec. 1.40).

(a) The production limitation record is actually page 2 of the production certificate. Therefore, the Production Certificate, Form ACA-333, and the Production Limitation Record, Form ACA-333a, should always be displayed together. (See sec. 1.45 Display.) Products approved for production under the terms of the production certificate are listed on the production limitation record by type cer-

tificate number(s) and date issued. Revisions to the production certificate for the purpose of adding or deleting a product are accomplished by revising the production limitation record only (see sec. 1.41-1).

1.41 Modification of the production limitation record. The holder of a production certificate desiring the addition of a type certificate and/or model to the production certificate shall submit an application therefor upon a form and in a manner prescribed by the Administrator. The applicant shall comply with the applicable requirements of sections 1.32 through 1.36 and 1.38.

1.41-1 Modifying a production limitation record (CAA policies which apply to sec. 1.41).

(a) To obtain the addition of a new type certificate number to a production limitation record, the manufacturer should submit an Application for Production Certificate, Form ACA-332, in duplicate. This application should be accompanied by any changes in the quality control data (see secs. 1.30, 1.36, 1.37 and 1.38) not previously reported which are pertinent to products covered by the new type certificate.

(1) Upon approval of the quality control data and a satisfactory inspection of the facilities, a superseding production limitation record will be issued, listing the new type certificate number. The manufacturer will be requested to return the superseded production limitation record for cancellation.

(b) To obtain the extension of production certificate privileges for a new model added to a type certificate previously listed on the production limitation record the manufacturer may follow the procedure outlined in paragraph (a) of this section, or notify the CAA that production certification privileges are desired with respect to the new model by so indicating in the space provided on the Application for Type Certificate, Form ACA-312. If the application for production certificate privileges is approved, the manufacturer will be notified that these privileges have been extended to cover the new model.

(c) The manufacturer, by letter, may request the deletion of one or more type certificates from a production limitation record. It is recommended that the manufacturer request

an area, random samples of the part(s) being manufactured in the area will be subjected to detailed conformity inspection only after the parts have been accepted in accordance with the manufacturer's established procedures. The CAA representative may inspect the part, or he may witness the inspection conducted by the manufacturer's employee. General shop practices and workmanship will also be considered in the evaluation.

(3) The CAA representative will check equipment and process records against the product characteristics to evaluate the effectiveness of the control.

(4) Examples of conformity inspections are as follows:

(i) The physical dimensional checking, or the witnessing of the physical dimensional checking, of a part and, where applicable, the complete product or assembly, to the specified dimensions on the approved drawings.

(ii) Witnessing the heat treatment of parts and checking the various steps followed in the heat treatment operation against the applicable specifications.

(iii) Conducting or witnessing resistance spot welding pull tests and checking the results to the applicable specification or drawings.

(iv) Witnessing the hardness testing of heat treated steel and aluminum parts.

(v) Checking, or witnessing the checking of, the moisture content of lumber to the applicable drawing or specification.

(vi) Witnessing the production testing to determine the engine's fuel and oil consumption and maximum power characteristics.

(vii) Witnessing the inspection of propellers for balance, blade edge and face alignment, track, blade contour, assembly, and operation.

(viii) Checking a rivet pattern to an applicable drawing.

(ix) Checking an oxyacetylene welder while he is accomplishing a weld.

(x) Witnessing the laboratory checking of plating or heat treatment solution to the applicable specifications.

(c) *Additional inspections of parts and assemblies.* These will be conducted on a sampling basis to the extent and frequency neces-

sary to evaluate the effectiveness of inspection control and related functions; to assure proper fabricating and assembly methods and procedures; and to ascertain that adequate safeguards are employed to minimize the probability of damage to materials, parts and assemblies. During these inspections, it will also be ascertained that inspection tags, "travel" cards, etc., are being properly completed, and that parts in process are properly identified during the various stages of fabrication.

(d) *Airworthiness inspections.* Inspections will be conducted by the CAA representative on the completed products, as necessary, to assure that the products comply with applicable airworthiness requirements and are safe for operation. Upon application and following completion of satisfactory inspection, the CAA representative will issue domestic airworthiness certificates or certificates of airworthiness for export.

(e) *Interim inspections.* As considered necessary, the CAA representative will conduct interim inspections of changes to the manufacturing and quality control procedures that occur from time to time which may affect the airworthiness of the product.

(f) *Annual Inspections.* A factory inspection will be conducted at least once a year to assure that the facilities are at least equivalent to the standards described in the quality control data for the issuance of the production certificate. Any conditions found which are not considered equivalent to the standards, or appear undesirable, will be reported to the manufacturer for consideration and corrective action.

1.43-2 *Inspection by CAA Designated Manufacturing Inspection Representatives (CAA policies which apply to sec. 1.43).*

(a) A manufacturer holding a production certificate may obtain the appointment of individuals in his employ as Designated Manufacturing Inspection Representatives who may be authorized to act in the capacity of Aviation Safety Agents. Information relative to the designation and the authority of these representatives is contained in Part 418 of Chapter II of this title (Regulations of the Administrator).

1.44 *Duration.* A production certificate shall remain in effect until surrendered, suspended, revoked, or a termination date is

(d) For requirements concerning identification plates, see the airworthiness part applicable to the particular product involved.

Replacement and Modification Parts

1.55 Applicable rules. Any person other than the holder of the type certificate producing replacement or modification parts for sale for installation on a type certificated product shall comply with sections 1.12 (a) and (b), 1.13, 1.15 (a) and (d), 1.20, and 1.50 (also see sec. 1.25).

Note: The provisions of this section are not applicable to parts produced under the terms of a type and/or production certificate, to parts produced by owners or operators for maintaining or altering their own products, or to standard parts (such as bolts and nuts) conforming to established industry or Government specifications; e. g., SAE and military specifications, and CAA Technical Standard Orders.

1.55-1 Replacement and modification parts—design approval (CAA policies which apply to sec. 1.55). Any person, whether or not a citizen of the United States, may apply to the CAA regional office for approval of the design of a part for use on a type certificated product. Such part must comply with the Civil Air Regulations governing the basic design for the product on which the part will be installed.

(a) Engineering design approval is a prerequisite for CAA approval of the fabrication inspection system. Evidence of design approval may be shown by one of the following means:

(1) A statement confirming that the design data has been approved by the CAA. This statement must contain the date and nature of the design approval.

(2) Evidence of a licensing arrangement with the holder of the type certificate covering the product on which the part is to be installed.

(3) A statement confirming that the approved design data of the type certificate holder was obtained from the CAA. Such data is available only when the type certificate holder has given permission for its release.

(b) A design that is obtained by copying an approved part but is not substantiated by technical data is not acceptable as a basis for production inspection system approval.

(c) The design approval entitles the holder

to production privileges equivalent to those accorded to the holder of a type certificate.

(d) After CAA approval, the design data for a part should be retained by the manufacturer and made available to any CAA representative. Each change to a part should be approved by the CAA and the manufacturer should identify such change on the drawing. The manufacturer should keep a record of each change with its date of CAA approval.

1.55-2 Replacement and modification parts—inspection approval (CAA policies which apply to sec. 1.55).

(a) The request, in duplicate, for a fabrication inspection system approval, together with evidence of design approval, should be submitted to the appropriate regional office or to the local CAA agent (letter form). The request should list the nomenclature of the part, part number, manufacturer's name, and model of the type certificated product for which the part has been approved for installation.

(b) Prior to the approval of the fabrication inspection system Approval Tag, Form ACA 186, will be used by the CAA representative, not to exceed 6 months, as evidence of inspection approval. After the inspection system is approved, the manufacturer must indicate on the part or package of small parts, evidence that they were produced under an approved inspection system. The symbol "CAA-PMA" is evidence that the part(s) has been manufactured under a CAA—Parts Manufacturer Approval.

(c) Each part or package shipped should be accompanied by approved installation drawings or specifications, where applicable, to assure that the installation will conform to the basic approval.

(d) Each part manufactured or modified shall be marked with such of the following data as the Administrator finds appropriate:

(1) Manufacturer's or modifier's name, trademark or symbol. The trademark or symbol should be filed with the CAA and will be included on the supplemental type certificates and approved replacement parts listing.

(2) Part number.

(3) Name and model designation of the type certificated product(s) for which the part is eligible for installation, or if impractical, a

offices, and Designated Manufacturing Inspection Representatives.)

1.60-3 *Processing application (CAA policies which apply to sec. 160).*

(a) *Application requirements.* The CAA will not require the applicant for a Certificate of Airworthiness to show legal evidence that he is a U. S. citizen and the owner of the aircraft, nor will his agent be required to furnish such evidence. The certifying statement made upon the application, Form ACA-305, will be accepted as satisfying the citizenship and ownership requirements of section 1.60.

However, at the time the aircraft is presented for the airworthiness inspection, a current registration certificate executed in the name of the applicant must be displayed in the aircraft. Failure to present a current registration certificate will be considered an incomplete application and cause for rejection of the application. There are three types of registration certificates, any one of which will be considered acceptable for the purpose of indicating that the aircraft is currently registered. The three types of registration certificates acceptable are:

(b) *The permanent type.* Part A of Form ACA-500 is the permanent registration certificate. This certificate is the one returned to the registered owner from the Aircraft Records Branch, Washington, D. C. The certificate will have been validated by the Washington office of the CAA and is current as of the date of issue shown on the form.

(c) *The temporary type.* This certificate is the original of Part B of Form ACA-500. This form is completed by the applicant and displayed in the aircraft in accordance with instructions furnished with the form. The duration of this certificate is set forth in item 5 of the certificate.

(d) *Dealer's aircraft registration certificate.* A current Dealer's Aircraft Registration Certificate, Form ACA-1707, is recognized as a current registration certificate for the purpose of making application for an airworthiness certificate. (Dealers' aircraft registration certificates are described and provided for in Regulations of the Administrator, Part 502.)

(e) *CAA procedure.* During the course of the inspection, the CAA representative conducting the airworthiness inspection will indicate

on the Aircraft Inspection Report, Form ACA-305a, which is forwarded to Washington, the type of registration certificate displayed in the aircraft. This information will be compared with the official registration records in Washington to determine if the applicant is the official registered owner. Discrepancies involving official registration will be brought to the attention of the registered owner by the Washington office.

1.60-4 *Airworthiness certificates (CAA policies which apply to sec. 160).*

(a) Upon satisfactory application, and when the aircraft described in the application is found to conform with the airworthiness requirements specified in other related sections of the Civil Air Regulations, the CAA representative making the airworthiness determination will prepare a Certificate of Airworthiness, Form ACA-1362, or ACA-1362A, and deliver it to the applicant.

(b) The Certificate of airworthiness will contain the following information: aircraft nationality and registration mark, airworthiness classification, expiration date of certificate, date certificate was issued, signature of validating CAA representative, and scope of certificate.

1.61 *Aircraft categories for which airworthiness certificates are issued.*

(a) **Airworthiness certificates are issued for aircraft whose type design has been certificated under the normal, utility, acrobatic, or transport categories, for aircraft of the restricted category, and for surplus military aircraft in the limited category. In addition, experimental certificates and special flight permits are issued.**

1.61-1 *Airworthiness certificate classifications (CAA policies which apply to sec. 161).*

(a) For purposes of airworthiness identification and administration, airworthiness certificates are classified as Standard, Limited, Restricted, and Experimental. Aircraft found to conform to the "limited" or "restricted category" requirements will be issued a Limited or Restricted Certificate of Airworthiness, respectively. Aircraft found eligible for certification under the "normal," "utility," "acrobatic," or "transport category" requirements will be issued a Standard Airworthiness Certificate. Experimental airworthiness certificates will be issued

the aircraft, the Administrator finds that the aircraft conforms to the type design, and is in a condition for safe operation.

(c) *Import aircraft.* An applicant for the original issuance of an airworthiness certificate for an import aircraft type certificated in accordance with Part 10 of this subchapter shall be issued such certificate when the government of the country where the aircraft was manufactured certifies, or the Administrator finds, that the aircraft conforms to the type design and is in a condition for safe operation.

1.68 Airworthiness certificates for restricted category aircraft. Aircraft certificated in the restricted category shall not be used for the carriage of persons or cargo for compensation or hire. For purposes of this section, crop dusting, seeding, and other similar specialized operations are not considered as the carriage of persons or cargo for compensation or hire. Other special limitations for such aircraft are prescribed under the provisions of Part 8 of this subchapter. This section shall also apply to import aircraft certificated in accordance with Part 10 of this subchapter and section 1.69 of this part.

1.69 Airworthiness certificates for restricted category aircraft; requirements for issuance. The requirements for issuance of an airworthiness certificate for an aircraft in the restricted category are as stated in paragraphs (a) and (b) of this section.

(a) *Aircraft manufactured under a production certificate or type certificate only.* An applicant for the original issuance of an airworthiness certificate for an aircraft in the restricted category, type certificated under the provisions of section 8.10 (a) (1) of this subchapter, shall comply with the appropriate provisions of section 1.67.

(b) *Other aircraft.* An applicant for the issuance of an airworthiness certificate for aircraft of the restricted category other than those referred to in paragraph (a) of this section, such as surplus military aircraft and modified civil aircraft, may be issued such certificate when he demonstrates compliance with the provisions of subparagraphs (1) through (3) of this paragraph.

(1) The aircraft has been type certificated under the provisions of section 8.10 (a) (2) of this chapter, or modified under the provisions of section 8.10 (b) of this subchapter:

(2) The aircraft has been inspected by the Administrator and found by him to be in a good state of preservation and repair and in condition for safe operation; and

(3) The Administrator has prescribed operating limitations in accordance with Part 8 of this subchapter.

1.69-1 Issuance of restricted airworthiness certificates (CAA policies which apply to sec. 1.69).

(a) CAA policies concerning "restricted category" airworthiness certificates are contained in Part 8 of this subchapter. (The manual for Part 8 may be procured from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.)

1.70 Multiple airworthiness certification. Multiple airworthiness certification shall conform to the provisions of paragraphs (a) and (b) of this section.

(a) An aircraft shall be issued an airworthiness certificate in the restricted category and in any one or more of the other airworthiness categories prescribed by the regulations in this subchapter, if the applicant shows compliance with the requirements for each category when the aircraft is in the configuration for that category and if the aircraft can be converted from one category to another by removal or addition of equipment by simple mechanical means.

(b) Any aircraft certificated in the restricted and any other category shall be inspected and approved by an authorized representative of the Administrator, or by a certificated mechanic with an appropriate airframe rating, to determine airworthiness each time the aircraft is converted from the restricted category to another category for the carriage of passengers for compensation or hire, unless the Administrator finds this unnecessary for safety in a particular case.

1.70-1 Issuance of multiple airworthiness certificates (CAA policies which apply to sec. 1.70).

(a) CAA policies concerning multiple airworthiness certificates are contained in Part 8

ately rated mechanic immediately prior to submitting the application. The scope of a periodic inspection is described under section 18.30-18 of Civil Aeronautics Manual 18.

(4) Accomplish a flight test for the purpose of checking the proper functions of the powerplant, instruments and controls of airframe and powerplant.

(5) Present logbooks for the aircraft. The logbooks should show the results of the flight test and be signed by the pilot making the flight test. The entry should indicate that the aircraft performs normally and is considered airworthy.

(6) Present any information or technical orders that the CAA representative deems necessary to establish airworthiness compliance.

(7) Present a properly executed application for a Limited Airworthiness Certificate. Application for a Limited Airworthiness Certificate is made on Form ACA-305. (See sec. 1.60-2 for application procedure.)

(8) Present with the application a "limited category" aircraft specification for the particular model shown on the application. "Limited category" aircraft specifications are available free of charge from the CAA regional offices, or the CAA Office of Aviation Information, Washington 25, D. C.

The applicant should discuss the "limited category" aircraft certification requirements with the local CAA representative prior to formally submitting the aircraft for inspection and certification. This procedure is not mandatory; however, it will usually expedite final approval since the CAA representative will be able to instruct the applicant concerning the requirements for his particular aircraft.

1.72 Airworthiness certificate for limited category aircraft; requirements for reissuance. An applicant for an airworthiness certificate for an aircraft in the limited category shall show that the aircraft has been previously type certificated in the limited category, and that the aircraft complies fully with the requirements of Part 9 of this subchapter.

1.72-1 Procedure to be followed for recertification in the "limited category" (CAA policies which apply to sec. 1.72).

(a) Aircraft previously certificated in the

"limited category" and subsequently certificated in the "restricted" or "experimental" classification of airworthiness are eligible for recertification in the "limited" classification of airworthiness; provided, the aircraft is restored to the original level of airworthiness and is in a good state of preservation and repair, and in condition for safe operation. Application for recertification should be made in the same manner as outlined in section 1.71-1 (b).

1.73 Experimental certificates. Experimental certificates are issued for amateur-built aircraft and for aircraft which are to be used for experiment, for exhibition, for air racing, and to show compliance with Civil Air Regulations for the issuance of type certificates and related purposes.

1.73-1 Experimental airworthiness certification (CAA policies which apply to sec. 1.73).

(a) *type of operations.* Experimental airworthiness certificates are issued for the following, and similar types of operations: research and development; flight testing leading to type certificates; testing of new installations such as powerplants, propellers, controls, electronic equipment, etc., racing and exhibition flights and amateur-built aircraft.

(b) *Experimental military type aircraft.* Aircraft built on a military contract and identified by military aircraft identification marks are considered public aircraft and do not require issuance of airworthiness certificates. However, aircraft of military design built independently by manufacturers with the intention of demonstrating to prospective military purchasers, and not having military identification, will be required to obtain an Experimental Airworthiness Certificate inasmuch as such aircraft would be considered civil aircraft.

(c) *Amateur-built aircraft.* Amateur-built aircraft will be eligible for an Experimental Airworthiness Certificate when the applicant presents satisfactory evidence that the aircraft was designed and/or fabricated by an individual or group of individuals, the project having been undertaken for educational or recreation purposes and the CAA finds that the aircraft complies with the amateur-built aircraft requirements set forth in section 1.74-3.

1.74 Experimental certificates; requirements for issuance. The requirements for

(4) Suitable means, consistent with the size and complexity of the aircraft, should be provided to reduce the hazard of fire. A fire wall isolating the engine compartment from the remainder of the aircraft should be provided.

(5) Any engine or propeller may be used, provided no adverse characteristics of the engine, propeller, or engine-propeller combination are evident or known to the Administrator.

(6) The complete powerplant installation, including the propeller, as installed in the aircraft should satisfactorily undergo at least one hour of ground operation from idling to full throttle power prior to the first flight. The applicant may use any time interval he desires at the various speeds he selects.

(7) Only fuel of a grade which will eliminate destructive detonation and minimize the possibility of vapor lock should be used.

(8) Suitable means should be provided to minimize the possibility of carburetor ice.

(9) An identification plate containing at least the following should be displayed in the cabin or cockpit:

- (i) The name and address of the builder.
- (ii) The model designation.
- (iii) The serial number.
- (iv) The date of manufacture.

(c) *Essential data.* In addition to the information furnished on application, Form ACA-305, the following information should be submitted with the application:

- (1) Horsepower rating of engine and propeller.
- (2) Empty weight and maximum weight at which the aircraft will be operated.
- (3) Number of seats installed and their arrangement with respect to each other.
- (4) Whether single or dual control.
- (5) Fuel and oil capacities.
- (6) Maximum speed at which the applicant expects to operate the aircraft.
- (7) A statement as to the criteria (any regulations, design data, or other information) used as a basis for the design.

(d) *Examination and inspection.* As part of the certification procedure the aircraft will be subjected to examination and general inspection for airworthiness by an authorized CAA representative. Compliance with specific design requirements contained in paragraph (b)

of this section, as well as good aeronautical practice will be determined by means of this inspection and examination. Any apparent unairworthy feature, workmanship or device disclosed by the inspection will be repaired, reworked, or otherwise be changed to be acceptable to the CAA prior to certification as an amateur-built aircraft.

(e) *Initial restrictions.* Upon satisfactory completion of all necessary inspections and testing on the ground, the CAA representative will issue an amateur-built aircraft "experimental" airworthiness certificate. Initially, the aircraft operating limitations of all amateur-built aircraft will contain appropriate restrictions as follows:

(1) Only day VFR flight will be authorized.

(2) The permissible flight area will be restricted to minimize any hazard to the general public. In no case will the initial permissible flight area exceed a 25-mile radius from applicant's base. Flights over thickly populated areas will be prohibited.

(3) Occupants of the aircraft will be limited to essential crew members, and, except in single place aircraft, the cabin or cockpit will be placarded, "Passengers Prohibited," in such a manner and location as to be visible from all seats.

(4) The aircraft will not be used for the carriage of cargo nor in connection with any business or employment.

(5) Such additional restrictions as the Administrator may deem necessary in the interest of safety.

(f) *Modified restrictions.* Upon satisfactory completion of the flight experience requirements outlined in paragraph (g) of this section, and the flight test demonstration outlined in paragraph (h), the flight operation restrictions applied at the time of initial certification may be amended as follows:

(1) Acrobatics may not be performed while carrying passengers.

(2) The restriction regarding flight areas may be removed.

(3) Passengers or cargo may not be carried for compensation or hire.

The placard "Passengers Prohibited" may be removed and the following substituted:

worthiness requirements, but which is capable of safe flight, for the purpose of permitting the aircraft to be flown to a base where repairs or alterations are to be made, or to permit the delivery or export of the aircraft, or to permit production flight tests of new production aircraft.

1.76-1 *Special flight permits (CAA interpretations which apply to sec. 1.76)*

(a) *General.* Section 43.10 (a) states in part that "No aircraft, except foreign aircraft authorized by the Administrator to be flown in the United States, shall be operated unless an appropriate and valid airworthiness certificate or special flight authorization and a registration certificate issued to the owner of the aircraft are carried in the aircraft * * *."

"Special flight authorization," mentioned above, is interpreted to mean the special flight permit described in this section. Special flight permits are issued for only two purposes: the first and primary purpose is to permit aircraft not fully complying with the established airworthiness requirements to be flown to bases where repairs or alterations may be made; the second purpose is to permit "flyaway" delivery or flights to points of export of aircraft which are airworthy but not eligible for a U. S. Certificate of Airworthiness. For example, an aircraft purchased by a person other than an American citizen would not be eligible for a U. S. Certificate of Airworthiness due to the fact that a current U. S. Registration Certificate is a prerequisite to obtaining an airworthiness certificate, and only a U. S. citizen, who can present proof of ownership, may obtain a current Aircraft Registration Certificate.

1.77 *Special flight permits; requirements for issuance.* The requirements for the issuance of special flight permits are as stated in paragraphs (a) and (b) of this section.

(a) Where found necessary by the Administrator, an applicant for a special flight permit shall submit a statement in a form approved by the Administrator indicating the purpose of the flight, the proposed itinerary, the duration of authorization requested, the persons to be on board the aircraft, the particulars, if any, in which the aircraft does not comply fully with the applicable airworthiness requirements, and the restric-

tions, if any, deemed necessary for safe operation of the aircraft.

(b) The Administrator shall accomplish, or shall require the applicant to accomplish, such appropriate inspections or tests as the Administrator may deem necessary in the interest of safety.

(c) Nothing in paragraphs (a) and (b) of this section shall prevent the issuance to an air carrier by the Administrator of a general authorization to conduct ferry flights for specified purposes as provided in those paragraphs, under such terms and conditions as may from time to time be prescribed by the Administrator.

1.77-1 *Application for permit (CAA rules which apply to sec. 1.77).*

(a) *Persons who may make application.* The registered aircraft owner or his agent shall make application for a special flight permit.

(b) *Application form.* Application shall be made by completing in duplicate Form ACA-1779 entitled "Application and Authorization for Ferry Permit," and submitting it to an authorization CAA Aviation Safety representative.

(Application forms are available at all CAA regional and Aviation Safety District Offices and from designated CAA representatives. The application form consists of two parts: the first part is completed by the applicant and furnishes a description of the aircraft, and the proposed flight; the second part is completed by the CAA representative, and is the authority to conduct the flight. This part shall be prepared to contain the conditions and limitations under which the flight is to be conducted.)

1.77-2 *Airworthiness (CAA policies which apply to sec. 1.77).*

(a) While the aircraft may not be eligible for a Certificate of Airworthiness, it must be found safe for the flight described on the application prior to commencing the flight. The CAA representative may make this determination prior to issuing the authorization, or he may require a pre-flight inspection to be conducted by a certificated mechanic in order to determine that the aircraft is safe for the flight authorized.

1.77-3 *Flight restrictions (CAA policies which apply to sec. 1.77).* The following flight restrictions will be prescribed for all aircraft to

conditions shall exist at the airport of takeoff and at the intended destination. The manual shall also include procedures for the inspection of the operating condition of the remaining engines.

Aircraft Nationality and Registration Marks

1.100 General. The identification of each aircraft shall be marked, and the markings shall be displayed as required in sections 1.101 through 1.107. No design, mark, or symbol which modifies or confuses the identification marks shall be placed on an aircraft, except with the approval of the Administrator.

1.101 Display of identification marks. Identification marks shall be displayed in accordance with the provisions in paragraphs (a) and (b) of this section.

(a) Aircraft registered for the first time after December 31, 1948, shall display identification marks consisting of the Roman capital letter "N", denoting United States registration, followed by the registration number. Other aircraft which display identification marks containing an airworthiness symbol "C", "R", "X", or "L", and which are operated solely within the United States may display such identification marks until the first time such aircraft are recovered or refinished to an extent necessitating the reapplication of the identification mark. Thereafter, such aircraft, and after December 31, 1950, all aircraft of United States registry operated outside of the United States, shall display identification marks consisting of the Roman capital letter "N", denoting United States registration, followed by the registration number.

(b) When an identification mark including only the Roman capital letter "N" and the registration number is utilized, limited and restricted category aircraft and experimental aircraft shall display the words "limited," "restricted," or "experimental," respectively, near each entrance to the cabin or cockpit of the aircraft. These markings shall be in letters not less than 2 inches nor more than 6 inches in height.

1.101-1. Assignment of registration numbers (CAA policies which apply to sec. 1.101 (a)).

(a) *General.* Section 1.101 (a) requires that all U. S. civil aircraft display identification marks. This section, in part, states that the identification marks shall be the Roman capital letter "N" followed by the registration number. The purpose of this policy is to make known the method by which an aircraft owner can obtain a registration number for an unidentified aircraft.

Most aircraft are assigned a registration number and display the proper identification marks prior to leaving the manufacturer's plant. Generally speaking, the registration number will continue to identify that particular aircraft throughout the remainder of its operating life. There are many times, however, that it is necessary for the owner of the aircraft to request that a registration number be assigned his aircraft. This is particularly true with converted military surplus, amateur-built aircraft, experimental aircraft, and aircraft imported from other countries which have not been certificated at the manufacturer's plant.

(b) *Procedure.*

(1) An aircraft should be assigned a registration number before the owner applies for registration. To obtain a registration number, the aircraft owner should furnish the local Aviation Safety District Office, or International Field Office if the aircraft is located outside the United States, the following information:

- (i) The name of the aircraft manufacturer.
- (ii) The aircraft model.
- (iii) The aircraft serial number.

(2) This information can usually be found on the manufacturer's nameplate, displayed in the aircraft, or on the bill of sale. Upon receipt of this information, the CAA representative will issue a registration number. This number is used when making application for registration and must be displayed on the aircraft in accordance with the requirements of sections 1.101 through 1.107.

1.102 Location of identification marks. Identification marks shall be located in accordance with paragraphs (a) through (e) of this section.

(a) *Fixed-wing aircraft.* The require-

graph shall be applicable to lighter-than-air aircraft.

(1) On each airship, spherical balloon, or nonspherical balloon identification marks shall be at least 20 inches high.

(d) *All aircraft.* The requirements of subparagraphs (1) through (3) of this paragraph shall be applicable to all aircraft.

(1) *Width.* Identification marks shall be two-thirds as wide as they are high with the exception of number "1" which shall be one-sixth as wide as it is high.

(2) *Thickness.* Identification marks shall be formed by solid lines of a thickness equal to one-sixth of the character height.

(3) *Spacing.* The space between the identification numbers and letters shall be not less than one-fourth of the character width.

1.104 *Color.* On each aircraft, identification marks shall contrast in color with the background.

1.105 *Affixation.* On each aircraft identification marks shall be painted or shall be affixed by such other means as will insure a similar degree of permanence and legibility, except that aircraft intended for immediate delivery to a foreign purchaser may display identification marks affixed with readily removable material.

1.106 *Design.* On each aircraft, identification marks shall have no ornamentation.

1.107 *Maintenance.* On each aircraft, identification marks shall be kept clean and legible at all times.

1.108 *Identification marks for nonconventional aircraft.* The identification marking rules prescribed in sections 1.101 through 1.107 are intended to apply to conventional aircraft as they are known today. When aircraft are developed which do not conform to the general configuration of present-day aircraft, a procedure for identification marking shall be prescribed by the Administrator.

1.108-1 *Identification marks for nonconventional aircraft (CAA rules which apply to sec. 1.108).*

(a) *Purpose.* The purpose of this rule is to prescribe the procedure for displaying identification marks on nonconventional aircraft. For the purpose of prescribing identification

marks, an aircraft is considered to be nonconventional when it is impossible to display the identification marks in accordance with the applicable rules prescribed in sections 1.101 through 1.107.

(b) *Procedure.* The owner of the aircraft shall submit to the local CAA representative a dimensioned three view drawing, or dimensioned photographs of the aircraft, including a statement setting forth the reason why it is not possible to identify the aircraft in accordance with the standard requirements. If the owner desires to include a proposed method of marking, it too will be considered. Such proposal shall take into consideration, as near as possible, the standard identification marking procedure set forth in sections 1.101 through 1.107.

This information shall be submitted to the local CAA representative as far in advance of the anticipated flight date as possible, since the CAA representative must forward the information to the Washington office for final decision.

1.109 *Identification marks for export aircraft.* An aircraft manufactured in the United States for delivery outside the United States or its possessions may display such identification marks as are required by the State of registry of the aircraft. Such aircraft shall be operated only for the purpose of test and demonstration flights for a limited period of time or while in necessary transit to the purchaser.

1.109-1 *Identification marks for export aircraft. (CAA policies which apply to sec. 1.109).* When foreign nationality and registration markings are not available for display upon new aircraft to be exported via flyaway to U. S. border or to some other location in U. S. where the aircraft will be disassembled for shipment, U. S. identification markings may be displayed on the aircraft in the normal manner (provided title to the aircraft is held by a citizen of the U. S.), and the markings may be affixed with a readily removable material.

(a) To minimize the cost involved in affixing identification markings to new aircraft being exported, exporters (manufacturers, dealers, and distributors who are holders of dealers' aircraft registration certificates) may request a special U. S. identification number consisting

Appendix A

Regional Offices and Areas of Jurisdiction

REGION 1. *Headquarters Office at Jamaica, Long Island, N. Y.*—Composed of the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Delaware, New Jersey, Pennsylvania, Ohio, Maryland, Virginia, West Virginia, Kentucky, and the District of Columbia.

REGION 2. *Headquarters Office at Fort Worth, Tex.*—Composed of the States of Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Oklahoma, Louisiana, and Texas; Territories of Puerto Rico, Swan Island, Virgin Islands, and Canal Zone.

REGION 3. *Headquarters Office at Kansas City, Mo.*—Composed of the States of Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

REGION 4. *Headquarters Office at Los Angeles, Calif.*—Composed of the States of Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, Washington, Oregon, Nevada, and California.

REGION 5. *Headquarters Office at Anchorage, Alaska.*—Consists of the Territory of Alaska, including the Aleutian Islands.

REGION 6. *Headquarters Office at Honolulu, T. H.*—Consists of the areas contained within the Honolulu, Wake and Guam Flight Information Regions established by ICAO. (Major operations are conducted in the Territory of Hawaii and the islands of Canton, Wake and Guam.)

INTERNATIONAL REGION. *Headquarters Office at Washington 25, D. C.*—Consists of those areas of the world not under the specific jurisdiction of other CAA regions.

TABLE OF AIRCRAFT NATIONALITY MARKINGS

Country	Nationality Marks	Country	Nationality Marks
Afghanistan.....	YA*	Lebanon.....	OD
Argentina.....	LV	Liberia.....	EL
Australia.....	VH	Libya.....	5A
Austria.....	OE	Luxembourg.....	LX
Belgium and Colonies.....	OO	Mexico.....	XA, XB,
Bolivia.....	CP*		XC
Brazil.....	PP, PT	Morocco.....	CN
Burma.....	XY, XZ	Netherlands.....	PH
Canada.....	CF	Netherlands Antilles.....	PJ
Ceylon.....	4R	Surinam.....	PZ
Chile.....	CC	New Guinea.....	JZ
China (Taipeh Taiwan).....	B	Newfoundland.....	VO
Colombia.....	HK	New Hebrides.....	YJ
Costa Rica.....	TI	New Zealand.....	ZK, ZL,
Cuba.....	CU*		ZM
Czechoslovakia.....	OK	Nicaragua.....	AN
Denmark.....	OY	Norway.....	LN
Dominican Republic.....	HI	Pakistan.....	AP
Ecuador.....	HC	Panama.....	HP
Egypt.....	SU	Paraguay.....	ZP
El Salvador.....	YS	Peru.....	OB
Ethiopia.....	ET	Philippine Republic.....	PI
Finland.....	OH	Poland.....	SP
France.....	F	Portugal.....	CS
Greece.....	SX	Portuguese Colonies.....	CR
Guatemala.....	TG	Saudi Arabia.....	HZ
Haiti.....	HH	Spain.....	EC
Honduras.....	XH	Sweden.....	SE
Iceland.....	TF	Switzerland.....	HB
India.....	VT	Syria.....	YK
Indonesia.....	PK	Thailand (Siam).....	HS
Iran.....	EP	Turkey.....	TC
Iraq.....	YI	Union of South Africa.....	ZS, ZT,
Ireland.....	EI, EJ		ZU
Israel.....	4X	United Kingdom.....	G
Italy.....	I	British Colonies and Protectorates.....	VP, VQ,
Japan.....	JA		VR
Jordan (Hashemite Kingdom of the Jordan).....	TJ*	United States.....	N
Korea (Republic of).....	HL	Uruguay.....	CX
		Venezuela.....	YV

*This marking is not yet officially confirmed.

Standard Forms

1. Type Certification

Number	Title
ACA-312.....	Application for Type Certificate.
ACA-335.....	Propeller Supplement to Application for Type Certificate ACA-312.
ACA-316.....	Type Inspection Authorization.
ACA-283-3-4b.....	Type Inspection Report, Part I, Aircraft Ground Inspection.
ACA-283-6.....	Type Inspection Report, Part I, Rotorcraft Ground Inspection (not included).
ACA-317.....	Statement of Conformity.
ACA-1257.....	Conformity Inspection Report.
ACA-331.....	Type Certificate.
ACA-2417.....	Supplemental Type Certificate.
ACA-186.....	Approval Tag.
ACA-1600.....	Statement of Compliance of Aircraft or Aircraft Components with the Civil Air Regulations.

2. Production Certification

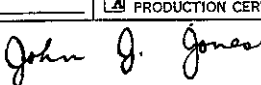
Number	Title
ACA-332.....	Application for Production Certificate.
ACA-314.....	Manufacturing Inspection Report.
ACA-333.....	Production Certificate.
ACA-333a.....	Production Limitation Record.
ACA-1557.....	Production Certificate Number Assignment Card.

3. Designated Manufacturing Inspection Representative

Number	Title
ACA-1381.....	Statement of Qualifications for D. M. I. R.
ACA-1382.....	Certificate of Authority.
ACA-2001.....	Aviation Safety Representative Certificate (not included).
ACA-1521.....	Designated Manufacturing Inspection Representative Number Assignment Card.

FORM ACA-312 (2-53)	U.S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION	FORM APPROVED BUDGET BUREAU NO. 41-R046.5
<h1 style="margin: 0;">APPLICATION FOR TYPE CERTIFICATE</h1>		INSTRUCTIONS For Aircraft and Appliance: Submit in duplicate to your Civil Aeronautics Administration Regional Office. Duplicate will be retained in region, and original forwarded to Washington. For Engine and Propeller: Submit in duplicate to Aircraft Engineering Division, Att: W-245 Civil Aeronautics Administration, Washington 25, D.C. Original will be retained in Washington, and duplicate will be forwarded to regional office involved.
1. NAME OF APPLICANT (Print or type) ABC Airplane Co.		
2. BUSINESS ADDRESS (Street, city, zone, and State) 50916 West Moreland Blvd. Paloma, New Jersey		3. FACTORY ADDRESS (Street, city, zone, and State) 50916 West Moreland Blvd. Paloma, New Jersey
4. TYPE OF ORGANIZATION (Check whether) <input type="checkbox"/> INDIVIDUAL <input type="checkbox"/> PARTNERSHIP <input type="checkbox"/> ASSOCIATION <input checked="" type="checkbox"/> CORPORATION		
5. TYPE CERTIFICATE APPLIED FOR		
<input checked="" type="checkbox"/> AIRCRAFT <input type="checkbox"/> AIRCRAFT ENGINE <input type="checkbox"/> PROPELLER <input type="checkbox"/> APPLIANCE _____ (Specify item)		
6. MODEL DESIGNATION(S) 17B		
The above type(s) and model(s) are completely described in the required technical data, including drawings, representing the design, material, specifications, construction, and performance of the Aircraft, Aircraft Engine, Propeller, or appliance which is the subject of this application.		
7. PRODUCTION CERTIFICATION		
ARE PRODUCTION CERTIFICATION PRIVILEGES DESIRED FOR ABOVE MODEL(S)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO ARE CHANGES IN PRODUCTION TECHNIQUES AND PROCESSES INVOLVED WHICH HAVE NOT BEEN PREVIOUSLY APPROVED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
NOTE: If applicant holds a current production certificate and no change to the production certification data is necessary (Ref. CAR 1.41), the above item 7, properly completed, will be accepted in lieu of an application for production certificate, Form ACA-332.		
CERTIFICATION		
I CERTIFY THAT THE ABOVE STATEMENTS ARE TRUE		
<div style="text-align: center;"> D. J. Wood _____ SIGNATURE OF CERTIFYING OFFICIAL </div>		Chief Engineer _____ TITLE
December 9, 1955 _____ DATE		

Figure 1.—Form ACA-312, Application for Type Certificate.

U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION TYPE INSPECTION AUTHORIZATION						NUMBER CAI-3																																									
						DATE July 2, 1955																																									
TO: <input checked="" type="checkbox"/> FLIGHT TEST SECTION REF. NO. KC-243		<input checked="" type="checkbox"/> MANUFACTURING INSPECTION SECTION REF. NO. KC-244		<input type="checkbox"/> POWER PLANT SECTION REF. NO. _____																																											
NAME OF APPLICANT Doe Aircraft Co.				ADDRESS (Street, City, Zone, State) Bellsville, Kansas																																											
1. INSPECTION AUTHORIZED FOR (Check one) <input checked="" type="checkbox"/> AIRPLANE <input type="checkbox"/> PROPELLER <input type="checkbox"/> OTHER (Specify) _____ <input type="checkbox"/> ENGINE <input type="checkbox"/> ROTORCRAFT		2. BASIC REQUIREMENTS FOR CERTIFICATION (Insert all applicable items) CAR INVOLVED AND EFFECTIVE DATE CAR 3, Nov. 1, 1949 AMENDMENTS 3-1 thru 3-10		3. CATEGORY—FOR AIRCRAFT ONLY (Check all applicable items) <input checked="" type="checkbox"/> NORMAL <input type="checkbox"/> TRANSPORT <input type="checkbox"/> UTILITY <input type="checkbox"/> RESTRICTED <input type="checkbox"/> ACROBATIC <input type="checkbox"/> OTHER (Specify) _____																																											
(Check one) <input checked="" type="checkbox"/> NEW MODEL <input type="checkbox"/> REVISED MODEL																																															
APPROVED DESIGN SPECIFICATIONS				MFR., MODEL, SPEC. NO., ETC. Doe, Model 410, New																																											
4. PARTIAL TYPE INSPECTION <input type="checkbox"/> SEE FORM ACA-337, DATED _____ SAME AS (Name of manufacturer and model No.) _____				9. WEIGHTS (Pounds) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>CATEGORY (N)</th> <th>CATEGORY ()</th> </tr> </thead> <tbody> <tr> <td>EMPTY (Approximately)</td> <td>2800</td> <td></td> </tr> <tr> <td>MAXIMUM TAKE-OFF</td> <td>4600</td> <td></td> </tr> <tr> <td>MAXIMUM LANDING</td> <td>4600</td> <td></td> </tr> <tr> <td>MAXIMUM ZERO FUEL</td> <td></td> <td></td> </tr> </tbody> </table>					CATEGORY (N)	CATEGORY ()	EMPTY (Approximately)	2800		MAXIMUM TAKE-OFF	4600		MAXIMUM LANDING	4600		MAXIMUM ZERO FUEL																											
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MAXIMUM ZERO FUEL																																															
EXCEPT FOR (Specify) _____				10. CARGO SPACES AND MAXIMUM LOADS* <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>WEIGHT IN POUNDS</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>200</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">DISTANCE FROM DATUM 196"</td> </tr> </tbody> </table>				WEIGHT IN POUNDS				200				DISTANCE FROM DATUM 196"																															
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5. DESIGN SPEEDS—MPH (EAS) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>CATEGORY (N)</th> <th>CATEGORY ()</th> </tr> </thead> <tbody> <tr> <td>V_{LO} LANDING GEAR OPERATING</td> <td>130</td> <td></td> </tr> <tr> <td>V_{LE} LANDING GEAR EXTENDED</td> <td>130</td> <td></td> </tr> <tr> <td>V_C CRUISING</td> <td>200</td> <td></td> </tr> <tr> <td>V_D DIVING</td> <td>273</td> <td></td> </tr> <tr> <td>V_A MANEUVERING</td> <td>159</td> <td></td> </tr> <tr> <td>FLAP DOWN 40 ° (POWER OFF)</td> <td>130</td> <td></td> </tr> <tr> <td>FLAP DOWN 40 ° (POWER ON)</td> <td>130</td> <td></td> </tr> </tbody> </table>					CATEGORY (N)	CATEGORY ()	V _{LO} LANDING GEAR OPERATING	130		V _{LE} LANDING GEAR EXTENDED	130		V _C CRUISING	200		V _D DIVING	273		V _A MANEUVERING	159		FLAP DOWN 40 ° (POWER OFF)	130		FLAP DOWN 40 ° (POWER ON)	130		11. CG LIMITS* WHEELS <input type="checkbox"/> UP <input checked="" type="checkbox"/> DOWN RETRACTION MOMENT _____ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th></th> <th>MOST FORWARD</th> <th>MOST REARWARD</th> </tr> </thead> <tbody> <tr> <td>% MAC. (Length MAC. 61.0 in)</td> <td></td> <td>16</td> <td>32</td> </tr> <tr> <td>DISTANCE FROM DATUM (Inches)</td> <td></td> <td>137.5</td> <td>142.4</td> </tr> <tr> <td></td> <td></td> <td>REDUCED WT. 130.8</td> <td></td> </tr> </tbody> </table>						MOST FORWARD	MOST REARWARD	% MAC. (Length MAC. 61.0 in)		16	32	DISTANCE FROM DATUM (Inches)		137.5	142.4			REDUCED WT. 130.8	
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		REDUCED WT. 130.8																																													
6. MAXIMUM MACH. NO. _____ 7. MAXIMUM OPERATING ALTITUDE (Feet) _____ 8. MAX. CABIN PRESS. DIFFERENTIAL (PSI) _____				*LOCATION OF DATUM: 100" Fwd. of Fus. Sta. 0 LOCATION OF LEADING EDGE OF MAC: 78.25" aft of Fus. 12. LIMIT POSITIVE MANEUVERING LOAD FACTOR Sta. 0 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>CATEGORY (N)</th> <th>CATEGORY ()</th> </tr> </thead> <tbody> <tr> <td>FLAPS UP</td> <td>3.8</td> <td></td> </tr> <tr> <td>FLAPS DOWN</td> <td>2.0</td> <td></td> </tr> </tbody> </table>					CATEGORY (N)	CATEGORY ()	FLAPS UP	3.8		FLAPS DOWN	2.0																																
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FLAPS DOWN	2.0																																														
13. OPERATION LIMITATIONS (Engine name and model) 2 Aero Engines, Model B-074-0						ENGINE SPECIFICATION NO. _____ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>MAXIMUM ALLOWABLE TEMPERATURE</th> <th>°F.</th> </tr> </thead> <tbody> <tr> <td>CYL. HEAD (OR COOLANT OUTLET)</td> <td></td> <td>WASHER</td> </tr> <tr> <td></td> <td></td> <td>BAYONET</td> </tr> <tr> <td>CYLINDER BASE</td> <td></td> <td>290</td> </tr> <tr> <td>OIL INLET</td> <td></td> <td>225</td> </tr> <tr> <td>MINIMUM CARBURETOR HEAT RISE</td> <td>See item</td> <td></td> </tr> <tr> <td>REQUIRED AT _____ % M. C. POWER</td> <td>18</td> <td>(5)</td> </tr> </tbody> </table>			MAXIMUM ALLOWABLE TEMPERATURE	°F.	CYL. HEAD (OR COOLANT OUTLET)		WASHER			BAYONET	CYLINDER BASE		290	OIL INLET		225	MINIMUM CARBURETOR HEAT RISE	See item		REQUIRED AT _____ % M. C. POWER	18	(5)																			
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14. PROPELLER (Mfr. and model) Brown Model CH-82XF-2/8833						DIAMETER 88" PROPELLER SPECIFICATION NO. P-100																																									
15. ROTORCRAFT MAXIMUM DESIGN SPEED _____ MPH POWER ON ROTOR LIMITS—RPM _____ MAXIMUM _____ MINIMUM _____				MAXIMUM _____ MINIMUM _____ POWER OFF ROTOR LIMITS—RPM _____																																											
16. INSPECTION REPORT <input type="checkbox"/> DETERMINE THAT FORM ACA-319 (PERIODIC INSPECTION REPORT) IS COMPLETED						18. FORM ACA-283 <input checked="" type="checkbox"/> COMPLETE APPLICABLE PORTIONS OF FORM ACA-283, PART 1 <input checked="" type="checkbox"/> COMPLETE APPLICABLE PORTIONS OF FORM ACA-283, PART 2 <input checked="" type="checkbox"/> SEE ATTACHED PAGES FOR INSTRUCTIONS <input checked="" type="checkbox"/> SEE ATTACHED PAGES FOR SPECIAL TESTS (Define divisions of responsibilities) <input checked="" type="checkbox"/> PRODUCTION CERTIFICATION PRIVILEGES REQUESTED																																									
17. EQUIPMENT LIST <input checked="" type="checkbox"/> DETERMINE THAT EQUIPMENT LIST IS CORRECT AS TO WEIGHT AND ARM OF EACH ITEM <input type="checkbox"/> ATTACHED LIST <input type="checkbox"/> MANUFACTURER'S REPORT NUMBER (Specify) _____																																															
ORIGINATED BY (Ref. No.) KC-241 APPROVED BY (Check and initial below)						<div style="text-align: center;">  John J. Jones Chief, Aircraft Engineering Division, KC-235 (Signature and title) </div>																																									
REF. NO. KC-241 INITIAL WHH		REF. NO. KC-243 INITIAL HHH		REF. NO. KC-245 INITIAL GWV		REF. NO. KC-244 INITIAL WJO																																									

U. S. GOVERNMENT PRINTING OFFICE 16-49042-2

Form ACA-316 (4-53)

Figure 3.—Form ACA-316, Type Inspection Authorization (for aircraft).

TIA CAL-3

- 3 -

July 2, 1955

- (4) The Aero Engine Model B-074-0 has not been type certificated, the Brown Model CH-82XF-2/8833 propeller has not been approved for the rating of this engine, and the engine--propeller--airplane combination has not been approved vibration-wise. As no information is available in this office regarding limitations of the B-074-0 engine, it is recommended that the applicant contact the engine manufacturer for limitations and recommended instrumentation.
- (5) The engine installation has an anti-icing carburetor; therefore compliance with the requirements of CAR 3.606 (d) of Amendment 3-10 should be determined.
- (6) The landing gears should be retracted under as many conditions as possible, including altitude, to evaluate the suitability of the 5 ampere circuit breaker in the landing gear circuit in simulating cold weather operation.
- (7) Determine the adequacy of the landing gear retraction system, and clean storage clips for elimination of interference with the fuel selector valve.

U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION				NUMBER CE40-1W																									
TYPE INSPECTION AUTHORIZATION				DATE 7-4-55																									
TO: <input type="checkbox"/> FLIGHT TEST SECTION		<input checked="" type="checkbox"/> MANUFACTURING INSPECTION SECTION		<input checked="" type="checkbox"/> POWER PLANT SECTION																									
REF. NO. _____		REF. NO. NY-244		REF. NO. NY-245																									
NAME OF APPLICANT Aircraft Engine Corporation			ADDRESS (Street, City, Zone, State) 1621 South St., Woodside, Pennsylvania																										
1. INSPECTION AUTHORIZED FOR (Check one)		2. BASIC REQUIREMENTS FOR CERTIFICATION (Insert all applicable items)		3. CATEGORY—FOR AIRCRAFT ONLY (Check all applicable items)																									
<input type="checkbox"/> AIRPLANE <input type="checkbox"/> PROPELLER <input type="checkbox"/> OTHER (Specify) _____ <input checked="" type="checkbox"/> ENGINE <input type="checkbox"/> ROTORCRAFT		CAR INVOLVED AND EFFECTIVE DATE CAR 13 - March 5, 1952 AMENDMENTS 13-2, 5/18/54		<input type="checkbox"/> NORMAL <input type="checkbox"/> TRANSPORT <input type="checkbox"/> UTILITY <input type="checkbox"/> RESTRICTED <input type="checkbox"/> ACROBATIC <input type="checkbox"/> OTHER (Specify) _____																									
(Check one) <input checked="" type="checkbox"/> NEW MODEL <input type="checkbox"/> REVISED MODEL																													
APPROVED DESIGN SPECIFICATIONS			MFR., MODEL, SPEC. NO., ETC.																										
4. PARTIAL TYPE INSPECTION <input type="checkbox"/> SEE FORM ACA-397, DATED _____			Aircraft Engine Model 4-1-A																										
SAME AS (Name of manufacturer and model No.) _____			Specification E-123																										
EXCEPT FOR (Specify) High Compression Ratio (8.4:1) Pistons, Grade 91/96 Fuel			9. WEIGHTS (Pounds)																										
			EMPTY (Approximately) _____ CATEGORY () _____ CATEGORY () _____ MAXIMUM TAKE-OFF _____ MAXIMUM LANDING _____ MAXIMUM ZERO FUEL _____																										
5. DESIGN SPEEDS—MPH (EAS)			10. CARGO SPACES AND MAXIMUM LOADS*																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th>CATEGORY ()</th> <th>CATEGORY ()</th> </tr> <tr><td>V_{LO} LANDING GEAR OPERATING</td><td></td><td></td></tr> <tr><td>V_{LE} LANDING GEAR EXTENDED</td><td></td><td></td></tr> <tr><td>V_C CRUISING</td><td></td><td></td></tr> <tr><td>V_D DIVING</td><td></td><td></td></tr> <tr><td>V_A MANEUVERING</td><td></td><td></td></tr> <tr><td>FLAP DOWN ° (POWER OFF)</td><td></td><td></td></tr> <tr><td>FLAP DOWN ° (POWER ON)</td><td></td><td></td></tr> </table>				CATEGORY ()	CATEGORY ()	V _{LO} LANDING GEAR OPERATING			V _{LE} LANDING GEAR EXTENDED			V _C CRUISING			V _D DIVING			V _A MANEUVERING			FLAP DOWN ° (POWER OFF)			FLAP DOWN ° (POWER ON)			WEIGHT IN POUNDS _____ DISTANCE FROM DATUM _____ 11. CG LIMITS* WHEELS <input type="checkbox"/> UP <input type="checkbox"/> DOWN RETRACTION MOMENT _____ % MAC. (Length MAC. _____ ins.) MOST FORWARD MOST REARWARD DISTANCE FROM DATUM (Inches) MAXIMUM WT. _____ REDUCED WT. _____ *LOCATION OF DATUM: _____ LOCATION OF LEADING EDGE OF MAC.: _____		
	CATEGORY ()	CATEGORY ()																											
V _{LO} LANDING GEAR OPERATING																													
V _{LE} LANDING GEAR EXTENDED																													
V _C CRUISING																													
V _D DIVING																													
V _A MANEUVERING																													
FLAP DOWN ° (POWER OFF)																													
FLAP DOWN ° (POWER ON)																													
6. MAXIMUM MACH. NO. _____			12. LIMIT POSITIVE MANEUVERING LOAD FACTOR																										
7. MAXIMUM OPERATING ALTITUDE (Feet) _____			FLAPS UP _____ CATEGORY () _____ CATEGORY () _____																										
8. MAX. CABIN PRESS. DIFFERENTIAL (PSI) _____			FLAPS DOWN _____																										
13. OPERATION LIMITATIONS (Engine name and model) Aircraft Engine - Model 4-1-A				ENGINE SPECIFICATION NO. _____																									
				MAXIMUM ALLOWABLE TEMPERATURE _____ °F.																									
ITEM		ON TAKE-OFF (Specify) MINUTES		CYL. HEAD (OR COOLANT OUTLET) _____																									
		SEA LEVEL		BAYONET _____																									
		ALT. HEIGHT (Specify) FT.		CYLINDER BASE _____																									
		ALTITUDE (MIN.) (Specify) FT.		OIL INLET _____																									
		ALTITUDE (MAX.) (Specify) FT.		MINIMUM CARBURETOR HEAT RISE _____																									
IN. HG	Full throttle-full throttle -	-	-	REQUIRED AT _____ % M. C. POWER																									
RPM	2700	2700	-																										
HP	270	270	-																										
14. PROPELLER (Mfr. and model) _____				DIAMETER _____ PROPELLER SPECIFICATION NO. _____																									
15. ROTORCRAFT		POWER ON ROTOR LIMITS—RPM _____		MAXIMUM _____																									
MAXIMUM DESIGN SPEED _____ MPH		POWER OFF ROTOR LIMITS—RPM _____		MAXIMUM _____																									
16. INSPECTION REPORT		18. FORM ACA-283																											
<input type="checkbox"/> DETERMINE THAT FORM ACA-319 (PERIODIC INSPECTION REPORT) IS COMPLETED		<input checked="" type="checkbox"/> COMPLETE APPLICABLE PORTIONS OF FORM ACA-283, PART 1																											
17. EQUIPMENT LIST		<input type="checkbox"/> COMPLETE APPLICABLE PORTIONS OF FORM ACA-283, PART 2																											
<input type="checkbox"/> DETERMINE THAT EQUIPMENT LIST IS CORRECT AS TO WEIGHT AND ARM OF EACH ITEM <input type="checkbox"/> ATTACHED LIST		<input type="checkbox"/> SEE ATTACHED PAGES FOR INSTRUCTIONS																											
<input type="checkbox"/> MANUFACTURER'S REPORT NUMBER (Specify) _____		<input type="checkbox"/> SEE ATTACHED PAGES FOR SPECIAL TESTS (Define divisions of responsibilities)																											
ORIGINATED BY (Ref. No.) W-245		<input checked="" type="checkbox"/> PRODUCTION CERTIFICATION PRIVILEGES REQUESTED																											
APPROVED BY (Check and initial below)																													
REF. NO.	INITIAL	REF. NO.	INITIAL																										
W-245	CHS																												
				Stephen H. Rolfe Chief, Power Plant Branch (Signature and title)																									

Figure 4.—Form ACA-316, Type Inspection Authorization (for engine).

- 1-1/2 hours at maximum continuous power and speed - 2700 rpm, F.T.
1/2 hour at 75% max. continuous power and 91% speed -
2450 rpm. & 25.0" MP.
- (b) 20 hours consisting of alternate periods as follows:
1-1/2 hours at max. continuous power and speed - 2700 rpm. F.T.
1/2 hour at 70% max. continuous power and 89% speed -
2400 rpm. & 24.0" M.P.
- (c) 20 hours consisting of alternate periods as follows:
1-1/2 hours at max. continuous power and speed - 2700 rpm. F.T.
1/2 hour at 65% power and 87% speed - 2340 rpm. & 22.9" M.P.
- (d) 20 hours consisting of alternate periods as follows:
1-1/2 hours at max. continuous power and speed - 2700 rpm. F.T.
1/2 hour at 60% power and 84.5% speed - 2280 rpm. & 21.7" M.P.
- (e) 20 hours consisting of alternate periods as follows:
1-1/2 hours at maximum torsional power and speed - 2625 rpm. F.T.
1/2 hour at 50% power and 79.5% speed - 2150 rpm. & 20.0" M.P.
- (f) 20 hours consisting of alternate periods as follows:
2-1/2 hours at max. continuous power and speed - 2700 rpm. F.T.
2-1/2 hours at max. cruise power - 75% max. continuous
power and 91% speed - 2450 rpm. & 25.0" M.P.
- (g) 30 hours consisting of alternate periods as follows:
5 min. at T.O. Power and speed - 2700 rpm. F.T.
5 min. at Best Economy Cruise Power -
-75% max. cont. power & speed - 2450 rpm. & 25.0" M.P.

Operating Conditions

All testing will be conducted under the following conditions, except where otherwise indicated:

- (a) Cylinder head temperatures - hottest head 500°F. \pm 10°
bayonet type thermocouple during first 50 hours of F.T. running
during endurance test.
- (b) Cylinder barrel temp. - hottest barrel - 300°F. \pm 10°F.
- (c) Oil inlet temp. (first 50 hrs.) - 245°F. \pm 5°F.
- (d) Carburetor entr. pressure - 29.90 - 30.0 Hg abs.
- (e) Carburetor entr. temp. - 70° - 90°F.
- (f) Mixture setting - Full Rich.
- (g) Fuel Temp. - 70° - 90°F.
- (h) Fuel press. - 3 to 5 PSIO.
- (i) Speed and power is to be held \pm 3% of desired.

18.5 Operation Test

Conduct an operation test with a propeller to determine that the engine shows no tendency towards unsatisfactory operation with respect to the following:

Figure 4.—Form ACA-316, Type Inspection Authorization (for engine)—Continued.

U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION TYPE INSPECTION AUTHORIZATION						NUMBER CP39-1W																																							
						DATE 7-27-55																																							
TO: <input type="checkbox"/> FLIGHT TEST SECTION REF. NO. _____		<input checked="" type="checkbox"/> MANUFACTURING INSPECTION SECTION REF. NO. NY-244		<input checked="" type="checkbox"/> POWER PLANT SECTION REF. NO. NY-245																																									
NAME OF APPLICANT Aircraft Propeller Company				ADDRESS (Street, City, Zone, State) Smithville, Connecticut																																									
1. INSPECTION AUTHORIZED FOR (Check one) <input type="checkbox"/> AIRPLANE <input checked="" type="checkbox"/> PROPELLER <input type="checkbox"/> OTHER (Specify) _____ <input type="checkbox"/> ENGINE <input type="checkbox"/> ROTORCRAFT _____ (Check one) <input type="checkbox"/> NEW MODEL <input type="checkbox"/> REVISED MODEL		2. BASIC REQUIREMENTS FOR CERTIFICATION (Insert all applicable items) CAR INVOLVED AND EFFECTIVE DATE CAR 14, 3-5-52 AMENDMENTS 14-1, 5-16-53 14-2, 1-18-54		3. CATEGORY—FOR AIRCRAFT ONLY (Check all applicable items) <input type="checkbox"/> NORMAL <input type="checkbox"/> TRANSPORT <input type="checkbox"/> UTILITY <input type="checkbox"/> RESTRICTED <input type="checkbox"/> ACROBATIC <input type="checkbox"/> OTHER (Specify) _____																																									
APPROVED DESIGN SPECIFICATIONS						MFR., MODEL SPEC. NO., ETC.																																							
4. PARTIAL TYPE INSPECTION <input type="checkbox"/> SEE FORM ACA-337, DATED _____ SAME AS (Name of manufacturer and model No.) _____ EXCEPT FOR (Specify) _____						9. WEIGHTS (Pounds) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>CATEGORY ()</th> <th>CATEGORY ()</th> </tr> </thead> <tbody> <tr> <td>EMPTY (Approximately)</td> <td></td> <td></td> </tr> <tr> <td>MAXIMUM TAKE-OFF</td> <td></td> <td></td> </tr> <tr> <td>MAXIMUM LANDING</td> <td></td> <td></td> </tr> <tr> <td>MAXIMUM ZERO FUEL</td> <td></td> <td></td> </tr> </tbody> </table>			CATEGORY ()	CATEGORY ()	EMPTY (Approximately)			MAXIMUM TAKE-OFF			MAXIMUM LANDING			MAXIMUM ZERO FUEL																									
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	CATEGORY ()	CATEGORY ()																																											
V _{LO} LANDING GEAR OPERATING																																													
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V _D DIVING																																													
V _A MANEUVERING																																													
FLAP DOWN ° (POWER OFF)																																													
FLAP DOWN ° (POWER ON)																																													
6. MAXIMUM MACH. NO. _____ 7. MAXIMUM OPERATING ALTITUDE (Feet) _____ 8. MAX. CABIN PRESS. DIFFERENTIAL (PSI) _____						12. LIMIT POSITIVE MANEUVERING LOAD FACTOR FLAPS UP _____ FLAPS DOWN _____																																							
13. OPERATION LIMITATIONS (Engine name and model) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">ITEM</th> <th rowspan="2">ON TAKE-OFF (Specify) MINUTES</th> <th colspan="2">LOW RATIO SUPERCHARGER</th> <th colspan="2">HIGH RATIO SUPERCHARGER</th> <th colspan="2">ENGINE SPECIFICATION NO.</th> </tr> <tr> <th>SEA LEVEL</th> <th>ALT. HEIGHT (Specify) FT.</th> <th>ALTITUDE (MIN.) (Specify) FT.</th> <th>ALTITUDE (MAX.) (Specify) FT.</th> <th>MAXIMUM ALLOWABLE TEMPERATURE °F.</th> <th>WASHER BAYONET</th> </tr> </thead> <tbody> <tr> <td>IN. HG</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RPM</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HP</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						ITEM	ON TAKE-OFF (Specify) MINUTES	LOW RATIO SUPERCHARGER		HIGH RATIO SUPERCHARGER		ENGINE SPECIFICATION NO.		SEA LEVEL	ALT. HEIGHT (Specify) FT.	ALTITUDE (MIN.) (Specify) FT.	ALTITUDE (MAX.) (Specify) FT.	MAXIMUM ALLOWABLE TEMPERATURE °F.	WASHER BAYONET	IN. HG								RPM								HP								CYLINDER BASE _____ OIL INLET _____ MINIMUM CARBURETOR HEAT RISE _____ REQUIRED AT _____ % M. C. POWER	
ITEM	ON TAKE-OFF (Specify) MINUTES	LOW RATIO SUPERCHARGER		HIGH RATIO SUPERCHARGER				ENGINE SPECIFICATION NO.																																					
		SEA LEVEL	ALT. HEIGHT (Specify) FT.	ALTITUDE (MIN.) (Specify) FT.	ALTITUDE (MAX.) (Specify) FT.	MAXIMUM ALLOWABLE TEMPERATURE °F.	WASHER BAYONET																																						
IN. HG																																													
RPM																																													
HP																																													
14. PROPELLER (Mfr. and model) Aircraft propeller - Model 48A10/1247-1						DIAMETER 15"-1-1/8" PROPELLER SPECIFICATION NO. _____																																							
15. ROTORCRAFT MAXIMUM DESIGN SPEED _____ MPH		POWER ON ROTOR LIMITS—RPM _____ MAXIMUM _____ MINIMUM _____		POWER OFF ROTOR LIMITS—RPM _____ MAXIMUM _____ MINIMUM _____																																									
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ORIGINATED BY (Ref. No.) W-245 APPROVED BY (Check and initial below) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REF. NO.</th> <th>INITIAL</th> <th>REF. NO.</th> <th>INITIAL</th> </tr> </thead> <tbody> <tr> <td>W-245</td> <td>J.C.M.</td> <td></td> <td></td> </tr> </tbody> </table>						REF. NO.	INITIAL	REF. NO.	INITIAL	W-245	J.C.M.			Stephen H. Rolfe Chief, Power Plant Branch (Signature and title)																															
REF. NO.	INITIAL	REF. NO.	INITIAL																																										
W-245	J.C.M.																																												

Figure 5.—Form ACA-316, Type Inspection Authorization (for propeller).

No. CP39-1WDate 7-27-55

Attachment A

to

Type Inspection Authorization
(Continued)

- (4) Endurance test during engine test as covered by
T.I.A. No. _____ dated _____ for the
_____ engine Model _____.

(C) Functional Test.

- (1) 1500 complete cycles of pitch change by means of the automatic control mechanism.
- (2) 50 complete feathering cycles. With operation of feathering control, mixture control may be moved to idle cut-off, or throttle may be closed, or the engine stopped.
- (3) 200 complete reversing cycles. During each cycle, propeller will be operated in full reverse pitch for one minute at 2750 HP and 1138 rpm.

II. Tear-down Inspection. To be witnessed by CAA personnel from
NY-244 ASDO No. 42.

Shall follow completion of all tests.

- (A) Conduct conformity checks. Indicate any parts showing appreciable wear, corrosion, galling, interference with other parts, etc.
- (B) Inspect the applicable parts listed below by the magnetic particle, dye penetrant, fluorescent penetrant, acid etching, or anodizing process where applicable, supplementing one process by another if necessary.

Figure 5.—Form ACA-316, Type Inspection Authorization (for propeller)—Continued.

Form ACA 283-3-4b Part I
(Revised August 1954)

Page 1

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

TYPE INSPECTION REPORT
PART I
AIRCRAFT GROUND INSPECTION

T.I.A. No. 1A29Dated December 15, 1955

TO : Chief, Aircraft Engineering Division, Ref. NY-235

FROM : Chief, Manufacturing Inspection Branch, Ref. NY-244

SUBJECT : Applicant ABC Airplane Company

Make ABC Model 17B Specification No. Pending

Serial No. 17-2 Identification No. N 1000

☐ Alteration; Description _____

Modified by _____

Address _____

Basis: CAR 3 Dated 11-1-49 Including Amendments thru 3-12

Serial Nos. Eligible 17-1 & up

ATTACHMENTS: Equipment list and weight and balance report

Report Consists of Pages All

Inspections Conducted by E. Putney & J. B. Brown

Prepared by E. Putney & J. B. Brown

Reviewed by W. R. Renny

Date of Report January 31, 1956

Approved: S. A. White
Chief, Manufacturing Inspection Branch

Figure 6.—Form ACA-283-3-4b Part I, Type Inspection Report, Part I, Aircraft Ground Inspection.

ACA-283-3-4b Part I (8-54)

Page 5

ADMINISTRATIVE DATA

- A. Period of inspection; from December 16, 1955 to M January 29, 1956.
- B. Where conducted ABC Airplane Company, Paloma, N. J..
- C. Were unsatisfactory items noted during this inspection which resulted in changes to the product? ~~XXX~~ No
- D. Were revised technical data submitted by reason of required changes? ~~XXX~~ No
- E. Did inspections and/or tests involve several articles of the product?
(If so, identify by serial number(s) below, under Remarks.) ~~XXX~~ No
- F. Is type approval recommended? Yes ~~XXX~~
- G. Is this model recommended for Production Certification privileges? Yes ~~XXX~~

Remarks

NOTE: List all correspondence on file in the district and regional offices relating to this project. Copies are not to be included unless they are important and furnish information which is not otherwise available in this document.

(To continue "Remarks," insert pages. Number such pages 6A, 6B, etc.)

NOTE: Items not required by the Type Inspection Authorization were not changed from those originally approved.

ACA-283-3-4b Part I (8-54)

Page 7

GROUND INSPECTION1. Actual Empty Weight, Empty Weight C.G., Dimensions and Clearances1.0 Level Attitude1.0.1 Describe leveling provisions (CAR 3.401 and 4b.391) Longitudinal: left side of fuselage stations 459 and 485, 3" below windows, lateral lower aft side of fuselage frame 5981.0.2 Datum location 100 inches forward of nose of fuselage1.0.3 Horizontal distance, datum to average main landing gear C/L 474.88 in.1.0.4 Horizontal distance, datum to average auxiliary landing gear C/L 251.6 in.1.0.5 Weight, plus unusable fuel ☒ undrainable oil ☒ engine coolant ☐☒ full hydraulic fluidNote: Equipment list should indicate items installed when weighed ☒Left Main Gear 14775 lbs.Right Main Gear 14800 lbs.Auxiliary Gear 4467 lbs.Total 34042 lbs.1.0.5.1 Empty C.G. is 33.78 in. fwd. of average main landing gear C/L.1.0.5.2 Empty C.G. is 491.38 in. aft. of datum.

1.0.5.3 Most Forward C.G. Loading:

Fuel 1010 gals.; Oil 40 gals.; Crew 2;Passengers 44; Baggage _____ lbs. aft 3000 lbs. fwd.

1.0.5.4 Most Rearward C.G. Loading:

Fuel 1010 gals.; Oil 30 gals.; Crew 3;Passengers 44; Baggage 6000 lbs. aft 1000 lbs. fwd.

Note: See Page 26 of this report for propeller clearance data.

ACA-283-3-4b Part I (8-54)

Page 9

- | | | | |
|--------|--|--------|-----------------------------|
| 2.0.9 | Does sampling inspection of standard fasteners (e.g., bolts, nuts, pins, screws, rivets, etc.) indicate that they are in conformity with related drawings and specifications? | | |
| | CAR 3.294 | 4b.303 | Yes XX |
| 2.0.10 | Does sampling inspection of standard fasteners indicate acceptable standards of workmanship? | | |
| | CAR 3.294 | 4b.303 | Yes XX |
| 2.0.11 | Is workmanship throughout the product satisfactory? | | |
| | CAR 3.292 | 4b.302 | Yes XX |
| 2.0.12 | Have adequate protective control measures been employed in stocking and transportation to provide protection for materials against deterioration or reduction in service life expectancy due to weathering, corrosion, abrasion, mishandling, or other causes? | | |
| | CAR 3.295 | 4b.304 | Yes XX |
| 2.0.13 | With respect to a seaplane, have special treatments specified in related drawings or applicable specifications; i.e., those necessary to prevent corrosion from salt water operations, been accomplished? | | |
| | CAR 3.295 | 4b.304 | XX XX |
| 2.0.14 | Are adequate means (inspection openings, etc.) provided to permit ready access to parts or systems requiring periodic inspection, adjustment, or servicing? | | |
| | CAR 3.296 | 4b.305 | Yes XX |

Remarks

NOTE: Pages 1 and 5 of this form are used for reporting type certification inspection of engines and propellers. The Type Inspection Report, Part I, Rotorcraft Ground Inspection, Form ACA 283-6, will be used in reporting results of this activity on all helicopters and similar type of aircraft. The Form ACA 283-6 is not included in this Appendix because of its similarity to the Form ACA 283-3-4b.

(Remaining pages of this form omitted)

Figure 6.—Form ACA-283-3-4b Part I, Type Inspection Report, Part I, Aircraft Ground Inspection—Continued.

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

STATEMENT OF CONFORMITY

A. This certifies that the product described below has been manufactured in conformity with the type design data forming the basis for Type Certificate No. 1A29, and any revisions or modifications thereof currently approved by the Civil Aeronautics Administration as of October 1, 1955, with the exception of the following deviations:

Receiver - Transmitter installation in accordance
with Drawing No. 15100097/B

Ferry fuel tanks installation in accordance with
Drawing No. 15907632

B. Aircraft		Registration No. <u>N 0000</u>
Make <u>ABC</u>	Model <u>17B</u>	Sr. No. <u>15 - 9777</u>
C. Engine		
Make	Model	Sr. No.
D. Propeller		
Make	Hub model	Sr. No.
Blade model	Sr. Nos.	
E. Manufacturer's production test completed	<u>O. M. Dunn</u> <u>O. M. Dunn</u> Signature of Certifier	
	<u>March 2, 1956</u> Date	<u>Quality Manager</u> Title
	Representing <u>ABC Aircraft Company</u> Organization	
	<u>March 1, 1956</u> Date	

Comm-DC 21037

(Instructions on reverse side)

Form ACA-317 (12-54)

Figure 7.—Form ACA-317, Statement of Conformity.

Form ACA-331
(4-55)

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION
WASHINGTON

TYPE CERTIFICATE No. 100

This certificate, issued to ABC Aircraft Company

certifies that the following is of proper design, material, specifications, construction, and performance for safe operation, and meets the pertinent minimum standards, rules, and regulations prescribed by the Civil Aeronautics Board:

This certificate is of indefinite duration unless canceled, suspended, or revoked.

Date February 21, 1956

By direction of the Administrator:
E. C. Marsh
(Signature) E. C. Marsh
(Title) Chief, Aircraft Engineering Division

This certificate may be transferred if endorsed as provided on the back hereof.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Figure 9.—Form ACA-331, Type Certificate.

FORM ACA-2417 (7-56) U.S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION		Form Approved, Budget Bureau No. 41-R1823	
SUPPLEMENTAL TYPE CERTIFICATE		INSTRUCTIONS - Submit in triplicate to local CAA Aviation Safety Agent. Copy will be returned to applicant upon issuance.	
1. NAME AND ADDRESS OF APPLICANT W. B. Janes 6621 Edgevale Road St. Louis 11, Missouri		2. SUPPLEMENTAL TYPE CERTIFICATE APPLIED FOR: <input checked="" type="checkbox"/> AIRCRAFT <input type="checkbox"/> ENGINE <input type="checkbox"/> PROPELLER ORIGINAL MODEL DESIGNATION Monsoon AJX-75 NEW MODEL DESIGNATION (If desired)	
3. DESCRIPTION OF CHANGE Typhoon GO-435-C2B engine and Whirlway 83X20-2A/BA33-0 propeller installation with associated modifications of the nacelle, electrical system, propeller and engine controls, oil, fuel, and vacuum system. Installation of new engine mount, and reinforced and modified wing structure, and installation of spray rails and oil cooler accomplished in accordance with Ajax Aircraft Products Engineering Report No. 100, dated August 1, 1956			
4a. WILL DATA BE AVAILABLE FOR SALE OR RELEASE TO OTHER PERSONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO b. WILL PARTS BE MANUFACTURED FOR SALE (Ref. CAR 1.55)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
5. SIGNATURE AND TITLE OF APPLICANT <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <u>August 20, 1956</u> <small>DATE OF APPLICATION</small> </div> <div style="width: 50%; text-align: center;"> <u>W. B. Janes</u> <small>SIGNATURE</small> <u>W. B. Janes</u> <small>TITLE</small> <u>President, Ajax Aircraft Products</u> </div> </div>			
6. TO BE COMPLETED BY CAA			
NATURE AND LOCATION OF DATA Production drawings and installation instructions listed in Ajax Engineering Report No. 100 filed in Aircraft Engineering Division, Region 3. (See reverse side for revised aircraft operating limitations)			
ORIGINAL TYPE CERTIFICATE NO. A-792		CAA APPROVAL <u>Earl B. Flood</u> <small>SIGNATURE</small> <u>Earl B. Flood</u> <small>TITLE</small> <u>Chief, Aircraft Engineering Division, KC-235</u>	
SUPPLEMENTAL TYPE CERTIFICATE NO. SA3-197			
DATE OF APPROVAL <u>September 21, 1956</u>			

Figure 10.—Form ACA-2417, Supplemental Type Certificate.

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION
WASHINGTON, D. C.

This tag is attached to the unit, part or assembly described below for identification purposes and as evidence of airworthiness:

☒ **NEW** ☐ **USED**

XYL Propeller Co.

Model 197/CH3

TYPE CERTIFICATE NUMBER OR OTHER AUTHORITY
CONSTITUTING BASIS FOR APPROVAL.

3P27

(OVER) FORM ACA-186
(1-55)

INVOICE OR
WORK ORDER No. 9779

INSPECTED AND APPROVED

XYL Propeller Co.
(AGENCY NAME)

(AGENCY NUMBER WHERE PERTINENT)

February 27, 1956
(DATE OF APPROVAL)

E. K. Jones
E. K. Jones DMIR 1007
(TYPED NAME AND SIGNATURE OF APPROVING OFFICIAL)

Figure 11.—Form ACA-186, Approval Tag.

U.S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION		DESIGNATION NO. 1-1105
STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE CIVIL AIR REGULATIONS		DATE June 1, 1956
CLASSIFICATION OF DESIGNEE Structural Engineering Representative		
MODEL NO. K47	MODEL TYPE (Airplane, Radio, Helicopter, etc.) Airplane	NAME OF EMPLOYER Acme Airplane Company
LIST OF APPROVED REPORTS AND DATA		
NUMBER	TITLE	
Rep't. #2-24	"Horizontal Tail, Analysis"; dated 4/9/56	
Rep't # 2-31	"Aileron and Flap, Analysis"; dated 11/2/55	
<u>Drawings</u>		
230-2201	"Flap Assem. & Install. Outboard"; dated 11/29/55	
230-2202	"Flap Assem. and Install.-Inboard"; dated 12/4/56	
230-2202-2	"Control Rod-Assembly"; dated 1/12/55	
230-2203	"Flap Push Rod Assembly"; dated 6/10/55	
230-2203-1	"Bushing-Flap Push Rod Bolt"; dated 10/1/56	
230-2205	"Cable Assembly-Complete"; dated 8/19/55	
<p style="text-align: center;">This form is included for information purposes only and shows the method used by Designated Engineering Representatives in reporting design approvals they have made.</p>		
<p style="text-align: center;">CERTIFICATION</p> <p>UNDER THE AUTHORITY VESTED IN ME BY THE CIVIL AERONAUTICS ADMINISTRATION, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON ATTACHED SHEETS NUMBERED _____ HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT REQUIREMENTS OF THE CIVIL AIR REGULATIONS.</p> <p>I THEREFORE <input type="checkbox"/> RECOMMEND APPROVAL OF THESE DATA. <input checked="" type="checkbox"/> APPROVE</p> <p style="text-align: right;"><i>Charles H. Millidge</i> #1-1105 SIGNATURE OF ENGINEERING REPRESENTATIVE</p>		

COMM-DC 30149

FORM ACA-1600 (8-6-47)

Figure 12.—Form ACA-1600, Statement of Compliance of Aircraft or Aircraft Components with the Civil Air Regulations.

Form ACA-332
(1-54)

U.S. DEPARTMENT OF COMMERCE - CIVIL AERONAUTICS ADMINISTRATION

APPLICATION FOR PRODUCTION CERTIFICATE

INSTRUCTIONS FOR USE OF FORM

When Applying For Original Issuance of a Production Certificate - Submit this form, *in duplicate*, to the Aircraft Engineering Branch of the region in which the manufacturer's production facilities are located, and attach one copy of a report, in manual form, describing the inspection methods and procedures established to insure that each product produced is in conformity with the type design data and safe for operation. The data submitted shall comply at least with the applicable requirements contained in Part 1 of the Civil Air Regulations and related CAM 1.

When Applying for the Addition of a Type Certificate or Model to a Production Certificate - Submit this form, *in duplicate*, and attach one copy of a report as a supplement to the original report, if any additional methods or procedures are required to insure the airworthiness of products to be produced. If no additional methods, procedures, or processes are required, a statement to that effect is requested.

TO: Civil Aeronautics Administration

1. Name of manufacturer

ABC Aircraft Company

2. Business address

50916 West Moreland Blvd., Paloma, New Jersey

3. Factory address

50916 West Moreland Blvd., Paloma, New Jersey

4. Application is made for (Check applicable box)

☐ Issuance of a production certificate☒ Addition of type certificate(s) and/or new model designation as listed in Item 6 below, to productionCertificate No. 100

5. Article to be produced (Specify aircraft, aircraft engine, propeller, or appliance)

Aircraft

6. Type certificate No. (s) and/or new model designation

1A29 for Model 17B only

The undersigned, on his own behalf or having been duly authorized by the manufacturer described hereon, states that he is familiar with current Civil Air Regulations applicable to the certificate applied for, and that the applicant assumes full responsibility for the conformity and quality of articles produced under the terms of the type certificate(s) listed above.

I certify that the above statements are true.

BY O. M. Dunn
SignatureFebruary 23, 1956

Date

Quality Manager

Title

Figure 13.—Form ACA-332, Application for Production Certificate.

Form ACA-314 (11-45)		DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION	
MANUFACTURING INSPECTION REPORT			
Complete this form in duplicate, sign and forward to the Chief, Manufacturing Inspection Division (Regional)		Date March 5, 1956	Authorization No. PA100-1D
Region No. One			
Name of Company ABC Aircraft Company		Location (City and State) Paloma, New Jersey	
Producing (Specify aircraft, aircraft engine, propeller, or appliance) Aircraft		Type Certificate(s) No(s). 1A1, 1A19, 1A24, 1A29 (Model 17B)	
RECOMMENDATION FOR PRODUCTION CERTIFICATE			
(v)	TYPE CERTIFICATE(S) NO(S). (Insert below)		
Approved	1A1, 1A19, 1A24 (15A)		
Unapproved			
INSPECTION OF FACTORY FACILITIES, SHOP PRACTICES, QUALITY CONTROL, AND PERSONNEL			
Check one. For each unsatisfactory item give details on reverse side numbered to correspond to item in question.			
No.	Yes	No	No
PURCHASING			
1. Are sources of supply satisfactory?	X		
2. Are materials and parts purchased on detailed specif.?	X		
3. Are records of purchases and specifications kept?	X		
4. Are purchased parts inspected before stocking?	X		
STORAGE FACILITIES			
5. Is general arrangement orderly?	X		
6. Are materials and parts segregated and marked?	X		
7. Is adequate protection provided for materials subject to damage from sunlight, moisture, grease, or corrosion?	X		
MATERIALS			
8. Does random inspection of the following materials in stock and the applicable purchase specifications used indicate that they conform with the general requirements for aircraft materials?			
	None	Yes	No
a. Wood		X	
b. Bolts, nuts, and rivets		X	
c. Glue		X	
d. Steel tubing and sheet		X	
e. Aluminum alloy tubing and sheet		X	
f. Tie rods & cables, incl. terminals & turnbuckles		X	
g. Castings, Fittings		X	
h. Fabric		X	
Other (specify)			
i.			
j.			
k.			
EQUIPMENT			
9. Is general arrangement conducive to accurate, orderly work?	X		
10. Is the machinery installed adequate for the processes attempted by the manufacturer?	X		
11. Are sufficient jigs and fixtures used to guarantee accurate work reasonably free from defects?	X		
12. Is general equipment, other than 10 and 11, suitable for processes employed?	X		
PROCESSES			
13. Is precision and care used on all details?			
14. Are the following processes performed in accordance with accepted good practice?			
a. Welding		X	
b. Brazing and soldering	X		
c. Gluing			
d. Woodwork			
e. Metal cutting and forming			
f. Heat Treatment			
g. Fabric covering			
h. Corrosion prevention			
i. General practices			
j. Finishing			
k. Assembly			
15. Are the special processes listed in the manufactur- er's application and report performed in accord- ance with the description furnished?			
16. Are the results of 15 satisfactory?			
INSPECTION SYSTEM			
17. Is the inspection dept. organized under one responsible head as set forth in the mfr's. application and report?			
18. Are the inspectors provided with sufficient precision in- struments, space, and other facilities for careful work?			
19. Are reports and records kept and parts marked to show definitely which parts have been inspected?			
20. Does system for 19 show which inspector handled each case?			
21. Are sufficient inspectors employed to insure that all parts will be inspected?			
22. Does inspection system function satisfactorily? (Determine from inspection of passed parts and from observation.)			
PERSONNEL			
23. Does management of this company exercise adequate control over the airworthiness of the products manufactured by:			
a. Personal close contact with work?			
b. Delegation of subordinate responsibility to suitable persons for each department?			
c. Strict insistence upon rules, policies, and super- visory action in keeping with absolute reliability and freedom from defects?			
GENERAL			
24. Does the manufacturer as a final check test each assem- bled article for proper operation?			
25. After test are suitable steps taken to correct any defects?			
26. Are the facilities, procedures and organization of this manufacturer established in accordance with the manu- facturer's application and report?			
27. Is the sealed drawing list available?			
28. If the answer to 27 is "no", is other evidence of approval of drawings or data available?			

Continued on reverse

Figure 14.—Form ACA-314, Manufacturing Inspection Report.

No.	Continued	Yes	No	No.	Yes	No
29.	Are adequate bench and shop drawings, specifications and other technical information available to:			31.	Are procedures for segregation and disposition of rejections and salvage material established and adequately controlled?	
	a. Inspection personnel?	X				
	b. Production personnel?	X		32.	Are methods for processing and controlling deviations satisfactory?	
30.	Is distribution of the information in 29 prompt, systematic and properly controlled?	X				
33. REMARKS concerning items not covered in items 1 through 32. (Do not write beyond right-hand binding margin.)						
34. Explanation of Unsatisfactory Items						
<p style="text-align: right;"> <i>Warren R. Shay</i> Signed <u>Warren R. Shay</u> (Manufacturing Inspection Representative) </p>						
<p>The manufacturer has been furnished with full information in writing, copy attached, concerning all of the unsatisfactory items noted in this report (if any) and has been advised to communicate with this office when he feels that suitable corrective measures have been instituted.</p>						
<p style="text-align: right;"> <i>S. A. Whitehead</i> Approved <u>S. A. Whitehead</u> Chief, Manufacturing Inspection Division (Regional) </p>						
<p> <u>November 14, 1955</u> (date) </p>						

Figure 14.—Form ACA-314, Manufacturing Inspection Report—Continued.

The United States of America
Department of Commerce
Civil Aeronautics Administration

Production Certificate

Number 100

This certificate, issued to

ABC AIRCRAFT COMPANY

whose business address is

50916 West Moreland Blvd.
Paloma, N. J.

and whose manufacturing facilities are located at

50916 West Moreland Blvd.
Paloma, N. J.

*authorizes the production, at the facilities listed above, of reasonable duplicates
of* AIRCRAFT

*which are manufactured in conformity with authenticated data, including,
drawings, for which Type Certificates specified in the pertinent and currently
effective Production Limitation Record were issued. The facilities, methods, and
procedures of this manufacturer were demonstrated as being adequate for the
production of such duplicates on date of* May 7, 1947

Duration: *This certificate shall continue in effect indefinitely, provided,
the manufacturer continuously complies with the requirements for original
issuance of the certificate, or until the certificate is canceled, suspended, or
revoked.*



Date issued:

May 7, 1947

By direction of the Administrator

E. C. Marsh

E. C. Marsh

Chief, Aircraft Division

**This Certificate is not Transferable, AND ANY MAJOR CHANGE IN THE BASIC FACILITIES, OR IN THE LOCATION THEREOF,
SHALL BE IMMEDIATELY REPORTED TO THE APPROPRIATE REGIONAL OFFICE OF THE CIVIL AERONAUTICS ADMINISTRATION**

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years or both

The United States of America
Department of Commerce
Civil Aeronautics Administration

Production Limitation Record

*The holder of
Production Certificate No. 100
may receive the benefits incidental to the
possession of such certificate with respect to*
Aircraft

*manufactured in accordance with the data forming the
basis for the following Type Certificate(s) No.*

1A1 (issued November 1, 1948)
1A19 (issued June 16, 1950)
1A24 (issued October 23, 1951)
1A29 (issued February 21, 1956) Model 17B

March 7, 1956
Date of issuance

By Direction of the Administrator

E. C. Marsh
E. C. Marsh

Chief, Aircraft Division

Form ACA-1557 (4-46)	DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION
<u>PRODUCTION CERTIFICATE NUMBER ASSIGNMENT CARD</u>	
DATE ASSIGNED <u>June 9, 1956</u>	P.C. No. <u>201</u>
<u>Mooney Aircraft, Inc.</u> NAME OF MANUFACTURER	
<u>P. O. Box 72</u> <u>Louis Schreiner Field, Kerrville, Texas</u> BUSINESS ADDRESS	
<u>Louis Schreiner Field, Kerrville, Texas</u> FACTORY ADDRESS	
<u>Aircraft</u> SPECIFY ARTICLE TO BE PRODUCED	
22265	

Figure 17.—Form ACA-1557, Production Certificate Number Assignment Card.

FORM ACA-1381 (1-49)		DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION		FORM APPROVED BUDGET BUREAU NO. 41-R959.2	
STATEMENT OF QUALIFICATIONS FOR DESIGNATED MANUFACTURING INSPECTION REPRESENTATIVE				INSTRUCTIONS - Submit this form in triplicate, with employer's recommendations, to local Aviation Safety Agent.	
NAME (First, Middle, Last) Frank C. Allen				TO BE COMPLETED BY REGIONAL OFFICE	
ADDRESS (Street and number, City, Zone, and State) 1020 South Hard Street New York 20, New York				DESIGNATION NO. 1000	DATE ISSUED 1-6-56
				TO BE COMPLETED BY AVIATION SAFETY AGENT	
				<input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED	
1. DATE OF BIRTH 9-4-1908				ARE YOU A CITIZEN OF THE UNITED STATES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
2. EMPLOYER					
NAME John A. Doe Aircraft Company				HOLDER OF PRODUCTION CERTIFICATE NO. 100	
ADDRESS (Street and number, City, Zone, and State) 4515 Highland Avenue, New York 20, New York				FOR PRODUCTION OF Aircraft	
3. EMPLOYMENT RECORD DURING PAST FIVE YEARS *					
DATES OF EMPLOYMENT		NAME AND TYPE OF BUSINESS OF EMPLOYER		NATURE OF YOUR DUTIES AND TITLE	
9-1-49 - 4/28/51		Air Transport, Inc. - Airline		Mechanic - Later Inspector	
4/28/51 - 1/20/53		Wing Aircraft Co. - Airplane Mfr.		Inspection Foreman	
2/10/53 - 4/1/55		ABC Engine Co. - Engine Mfr.		Asst. Chief Inspector	
4/1/55 - Present		John A. Doe Aircraft Co. - Mfr.		Chief Inspector	
4. ARE YOU FAMILIAR WITH CURRENT CIVIL AIR REGULATIONS, INSTRUCTIONS, AND POLICIES APPLYING TO THE PRODUCTION, CONFORMITY AND QUALITY CONTROL, REPAIR AND ALTERATION OF THE ARTICLE BEING PRODUCED UNDER THE PRODUCTION CERTIFICATE LISTED IN ITEM 2 ABOVE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO					
5. IF YOU HAVE EVER BEEN DENIED AN AIRMAN CERTIFICATE, OR APPOINTMENT AS A DESIGNEE, OR IF ANY CERTIFICATE, RATING, OR DESIGNATION ISSUED TO YOU PURSUANT TO THE PROVISIONS OF THE CIVIL AIR REGULATIONS HAS BEEN SUSPENDED OR REVOKED AT ANY TIME, STATE DETAILS					
I CERTIFY THAT I AM FAMILIAR WITH THE REQUIREMENTS FOR THIS DESIGNATION, ITS PRIVILEGES AND LIMITATIONS, AND THAT THE INFORMATION STATED HEREIN IS TRUE. IT IS UNDERSTOOD THAT THIS DESIGNATION MAY BE REVOKED AT ANY TIME BY THE CIVIL AERONAUTICS ADMINISTRATION WITHOUT PRIOR NOTICE AND I AGREE TO SURRENDER ANY AUTHORIZATION OR CERTIFICATE ISSUED IN CONNECTION THEREWITH UPON WRITTEN REQUEST OF THE CIVIL AERONAUTICS ADMINISTRATION.					
January 2, 1956 DATE		Frank C. Allen SIGNATURE		Chief Inspector TITLE	
* IF ADDITIONAL SPACE IS REQUIRED, CONTINUE ON REVERSE, NUMBERING ITEM APPROPRIATELY					

22487

Figure 18.—Form ACA-1381, Statement of Qualifications for Designated Manufacturing Inspection Representative.

DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION CERTIFICATE OF AUTHORITY		DESIGNATION NO. 1000
<i>Hugh Mayo</i> <small>DESIGNEE'S SIGNATURE</small>	NAME HUGH MAYO	DESIGNATION EXPIRES 1-6-57
	Is authorized to act in the capacity of a Designated Manufacturing Inspection Representative	
	AT FIXED BASE OF OPERATION ABC Aircraft Company 50916 W. Moreland Blvd., Paloma, N. J.	
	for the Administrator 1-6-56 <i>S. A. Whitehead</i> <small>(DATE) (SIGNATURE)</small>	
<small>16-59536-1</small>		<small>Form ACA-1382 (6-49)</small>

The bearer has received all pertinent instructions and is authorized to act in the capacity set forth on this Certificate of Authority while under the supervision of the following district office or offices:		
Office	Date	Agent's signature
ASDO 43 Williamsport, Pa.	1-16-56	<i>D. J. Jones</i> D. J. Jones
<small>U. S. GOVERNMENT PRINTING OFFICE 16-59536-1</small>		

Figure 19.—Form ACA-1382, Certificate of Authority.

Form ACA-1521 (3-46)	DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION
<u>DESIGNATED MANUFACTURING INSPECTION REPRESENTATIVE NUMBER ASSIGNMENT CARD</u>	
D.M.I.R. No. <u>2017</u>	
NAME	<u>Howard L. Lewis</u>
ADDRESS	<u>11230 Jones Drive, Dallas, Texas</u>
MANUFACTURER	<u>Temco Aircraft Corporation</u>
ADDRESS	<u>P. O. Box 397, Garland, Texas</u>
PRODUCTION CERTIFICATE NO. <u>201</u>	PRODUCTION ARTICLE <u>Aircraft</u>
CERTIFICATE OF AUTHORITY BEARING NUMBER LISTED ABOVE WAS ISSUED <u>Oct. 4, 1956</u>	
ISSUED BY <u>Fred W. Westphal</u> DATE <u>FW-244</u>	
(NOTE: PREPARE ON TYPEWRITER. FORWARD WITH FORM ACA 1381 AND PERTINENT DATA.)	
21968	

Figure 20.—Form ACA-1521, Designated Manufacturing Inspection Representative Number Assignment Card.

U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION	Form Approved. Budget Bureau No. 41-R041.5.
INSTRUCTIONS Please print or type. Submit this form to the Civil Aeronautics Administration Aviation Safety Field Representative.	
APPLICATION FOR AIRWORTHINESS CERTIFICATE AND/OR ANNUAL INSPECTION OF AN AIRCRAFT	
1. TYPE OF APPLICATION (<i>Check which</i>)	
a. <input checked="" type="checkbox"/> ORIGINAL ISSUANCE OF CERTIFICATE b. <input type="checkbox"/> ANNUAL INSPECTION FOR RENEWAL OF CERTIFICATE c. <input type="checkbox"/> AMENDMENT OR MODIFICATION OF CURRENT CERTIFICATE	d. <input type="checkbox"/> RECERTIFICATION UNDER THE PROVISIONS OF CAR 8 e. <input type="checkbox"/> MULTIPLE CERTIFICATE UNDER THE PROVISIONS OF CAR 8 f. <input type="checkbox"/>
2. AIRWORTHINESS CLASSIFICATION (<i>Check appropriate item(s)</i>) It is requested that the Certificate of Airworthiness be issued to permit operation of the aircraft in the following airworthiness classification(s):	
a. <input checked="" type="checkbox"/> STANDARD (NORMAL, UTILITY, ACROBATIC, TRANSPORT CATEGORIES) b. <input type="checkbox"/> LIMITED (SEE CAR 9) c. <input type="checkbox"/> RESTRICTED (SEE CAR 8)	
<i>(Check the restricted special purpose operation(s) to be conducted)</i>	
<input type="checkbox"/> AGRICULTURAL AND PEST CONTROL <input type="checkbox"/> AERIAL ADVERTISING <input type="checkbox"/> AERIAL SURVEYING <input type="checkbox"/> GLIDER TOWING	<input type="checkbox"/> PATROLLING <input type="checkbox"/> FOREST AND WILDLIFE CONSERVATION <input type="checkbox"/> WEATHER CONTROL <input type="checkbox"/> OTHER
d. <input type="checkbox"/> EXPERIMENTAL <i>(Check the type of experimental operation(s) to be conducted)</i>	
<input type="checkbox"/> RESEARCH AND DEVELOPMENT <input type="checkbox"/> AMATEUR-BUILT <input type="checkbox"/> DEMONSTRATION	<input type="checkbox"/> RACING <input type="checkbox"/> EXHIBITION <input type="checkbox"/> OTHER
3. AIRCRAFT IDENTIFICATION (<i>Complete all items</i>)	
a. AIRCRAFT MAKE ABC	b. AIRCRAFT MODEL 17B
c. AIRCRAFT SERIAL NO. 15-9777	
d. ENGINE MAKE Hurricane	e. ENGINE MODEL S56/1976
4. AIRCRAFT REGISTRATION INFORMATION (<i>Complete all items</i>)	
a. REGISTERED OWNER'S FULL NAME ABC Aircraft Company	b. PERMANENT MAILING ADDRESS 50916 West Moreland Blvd., Paloma, N. J.
c. AIRCRAFT NATIONALITY AND REGISTRATION MARK N- 0000	
5. AIRCRAFT OWNER'S CERTIFICATION (<i>Check and complete appropriate item</i>)	
I hereby certify that I am the registered owner (or his agent) of the aircraft identified in Item 3 above which is registered* with the Civil Aeronautics Administration as required by the Regulations of the Administrator, Part 501 or 502 and when operated displays the following evidence of registration:	
a. <input type="checkbox"/> CERTIFICATE OF REGISTRATION, FORM ACA-500 (PART A), DATE OF ISSUE _____	
b. <input checked="" type="checkbox"/> APPLICATION FOR REGISTRATION, FORM ACA-500 (PART B). FORM ACA-500, PART A, FORWARDED TO CAA AIRCRAFT RECORDS BRANCH, W-300 ON <u>March 1, 1956</u> (DATE)	
c. <input type="checkbox"/> DEALER'S REGISTRATION CERTIFICATE, FORM ACA-1707, DATED _____	
<small>*In order to be eligible for registration an aircraft must be owned by a citizen of the United States, as defined by Section 1 (13) of the Civil Aeronautics Act of 1938, as amended.</small>	
ATTACHMENTS (<i>Check which</i>)	
<input type="checkbox"/> ACA-319 <input type="checkbox"/> ACA-337 <input type="checkbox"/> ACA-317	<input type="checkbox"/> WEIGHT AND BALANCE REPORT <input type="checkbox"/> DATA, DRAWINGS, ETC. <input type="checkbox"/> UNAPPROVED DEVIATION DATA
<div style="margin-bottom: 10px;"> O. M. Dunn </div> <div> (SIGNATURE OF REGISTERED OWNER OR AUTHORIZED AGENT) <u>March 2, 1956</u> <u>Quality Manager</u> (DATE) (TITLE) </div>	

U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION AIRCRAFT INSPECTION REPORT <i>(To be completed by a CAA representative or approved repair station)</i>			
The aircraft described in Item 3 on the reverse of this form has been inspected and found to conform to the following: <i>(Check and complete applicable items)</i>			
1. AIRCRAFT AND ENGINE CERTIFICATION BASIS a. <input type="checkbox"/> AIRCRAFT SPECIFICATION NO. <u>1A29</u> THROUGH SHEET REVISION NO. <u>None</u> b. <input type="checkbox"/> AIRCRAFT LISTING PAGE NO. _____ c. <input type="checkbox"/> AIRWORTHINESS DIRECTIVE SUMMARY <u>None</u> THROUGH CARD NO. _____ (YEAR) d. <input type="checkbox"/> CIVIL AIR REGULATION PART 8 (MODIFIED TYPE CERTIFICATE)			
2. AIRCRAFT AND ENGINE OPERATING RECORDS a. <input checked="" type="checkbox"/> AIRCRAFT NEW—NO PREVIOUS OPERATION OR MAINTENANCE HISTORY b. <input type="checkbox"/> COMPLIANCE WITH APPLICABLE AIRWORTHINESS DIRECTIVES RECORDED c. <input type="checkbox"/> AIRCRAFT RECORDS INDICATE THE AIRFRAME HAS BEEN OPERATED A TOTAL OF _____ HOURS d. <input type="checkbox"/> ENGINE RECORDS INDICATE THE FOLLOWING OPERATION: SERIAL NO. _____ TOTAL HOURS _____ SERIAL NO. _____ TOTAL HOURS _____ SERIAL NO. _____ TOTAL HOURS _____ SERIAL NO. _____ TOTAL HOURS _____			
3. PREVIOUS INSPECTION RECORD (INSPECTION RECORDED ON FORM ACA-319) a. LAST AIRWORTHINESS INSPECTION CONDUCTED _____ (DATE) <input type="checkbox"/> BY AIRCRAFT MANUFACTURER <input type="checkbox"/> BY APPROVED REPAIR STATION, CERTIFICATE NO. _____ <input type="checkbox"/> BY MECHANIC, CERTIFICATE NO. _____ b. <input type="checkbox"/> PERIODIC AIRCRAFT INSPECTION REPORT, FORM ACA-319, WAS RETURNED TO OWNER			
4. AIRWORTHINESS DOCUMENTS ISSUED OR REVIEWED a. <input type="checkbox"/> OPERATION LIMITATIONS, FORM ACA-309, WAS ISSUED (COPY ATTACHED) b. <input type="checkbox"/> CURRENT OPERATION LIMITATIONS, FORM ACA-309, IS AVAILABLE IN AIRCRAFT c. <input checked="" type="checkbox"/> CURRENT APPROVED AIRPLANE FLIGHT MANUAL IS AVAILABLE IN AIRCRAFT d. <input checked="" type="checkbox"/> CURRENT WEIGHT AND BALANCE INFORMATION IS AVAILABLE IN AIRCRAFT e. <input checked="" type="checkbox"/> THIS INSPECTION HAS BEEN RECORDED IN THE AIRCRAFT RECORDS f. <input checked="" type="checkbox"/> CERTIFICATE OF AIRWORTHINESS, FORM ACA-1362, ISSUED TO EXPIRE <u>March 3, 1957</u> (DATE) g. <input type="checkbox"/> PREVIOUS FORM ACA-1362 WAS ISSUED TO EXPIRE _____ (DATE) BY _____ (NAME OF ISSUING REPRESENTATIVE) _____ (DESIGNATION NO.)			
5. CAA APPROVED REPAIR STATION CERTIFICATION The aircraft described on the reverse has been inspected under the authority accorded certificated repair station No. _____ by CAR 52 and was found to be: <input type="checkbox"/> AIRWORTHY <input type="checkbox"/> UNAIRWORTHY _____ (REPAIR STATION AUTHORIZED SIGNATURE) (DATE)			
6. CAA REPRESENTATIVE CERTIFICATION I HAVE INSPECTED THE AIRCRAFT DESCRIBED ON THE REVERSE AND FOUND IT <input type="checkbox"/> AIRWORTHY <input type="checkbox"/> UNAIRWORTHY <i>(Check appropriate item)</i>			
DESIGNEE'S SIGNATURE <u>J. B. Brown</u> J. B. Brown	DESIGNATION NO. DMIR 1001	DATE 3/3/57	<input type="checkbox"/> ACCEPTED <input checked="" type="checkbox"/> REINSPECTED <input type="checkbox"/> SPOT CHECKED
AVIATION SAFETY AGENT'S SIGNATURE E. Putney <u>E. Putney</u>	CAA DESIGNATION NO. ASDO 1-43	DATE 3/7/57	
<input type="checkbox"/> ATTACHMENT			

Figure 22.—Form ACA-305a, Aircraft Inspection Report.

UNITED STATES OF AMERICA DEPARTMENT OF COMMERCE—CIVIL AERONAUTICS ADMINISTRATION CERTIFICATE OF AIRWORTHINESS		
1. NATIONALITY AND REGISTRATION MARKS N 77777	2. AIRCRAFT AIRWORTHINESS CLASSIFICATION STANDARD	
3. This Certificate of Airworthiness is issued pursuant to the Civil Aeronautics Act of 1938 as amended. The aircraft identified hereon is considered airworthy when maintained and operated in accordance with the Civil Air Regulations and applicable aircraft Operation Limitations.		
4. UNLESS SOONER SURRENDERED, SUSPENDED, REVOKED, OR A TERMINATION DATE IS OTHERWISE ESTABLISHED BY THE CIVIL AERONAUTICS BOARD THIS CERTIFICATE WILL EXPIRE REMAIN IN EFFECT AS LONG AS THE AIRCRAFT IS MAINTAINED IN ACCORDANCE WITH PART 43 OF THE CIVIL AIR REGULATIONS.		
5. DATE OF ISSUANCE OR RENEWAL JULY 2, 1956	6. CAA REPRESENTATIVE <i>Sam J. Jones</i> SAM J. JONES	7. DESIGNATION NO. DM-R 4077
8. Any alteration or misuse of this Certificate is punishable by a fine of not exceeding \$1,000 or imprisonment not exceeding 3 years, or both.		
GPO 16-83778-1		Form ACA-1362 (12-50)

Figure 23.—Form ACA-1362, Certificate of Airworthiness.

Form ACA-1779 (3-47)		DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION		FORM APPROVED BUDGET BUREAU NO. 41-R967	
APPLICATION AND AUTHORIZATION FOR FERRY PERMIT					
I. APPLICATION					
INSTRUCTIONS: Submit in duplicate to authorized Civil Aeronautics Administration representative or designated manufacturing inspection representative.					
DESCRIPTION OF AIRCRAFT					
REGISTERED IN NAME OF John H. Jones			ADDRESS 1171 Willow Street, Los Angeles, Calif.		
MAKE North American			MODEL AT-6A		
MANUFACTURER'S SERIAL NO. 42-49003			IDENTIFICATION MARK N12345		
DESCRIPTION OF FLIGHT					
FROM Los Angeles, California			TO San Diego, California		
VIA Most direct route			DATE 2-19-51		DURATION 3 days
PURPOSE To ferry aircraft to approved repair station #0000 at San Diego Airport for the purpose of recovering control surfaces.					
I HEREBY request authority to ferry the above-described aircraft for the flight specified.					
<i>John H. Jones</i> John H. Jones <small>(SIGNATURE OF APPLICANT)</small>			Owner <small>(TITLE)</small>		2-19-51 <small>(DATE)</small>
2. AUTHORIZATION					
INSTRUCTIONS: Retain this authorization in aircraft for duration of flight. This is your authority to conduct the flight requested above. This permit is valid until landing is effected at the destination indicated in your request, provided the aircraft is flown by a properly certified crew, is operated in accordance with applicable Civil Air Regulations, and in accordance with the following special limitations:					
<p>This Authorization has been issued for the purpose of moving the aircraft described above from Los Angeles, California to San Diego, California where alterations can more advantageously be accomplished. The flight shall be made in accordance with contact flight rules (day) and be limited to crew essential to purpose of flight and their baggage.</p> <p>This Authorization will expire February 22, 1951.</p>					
REMARKS: None					
DATE ISSUED 2-19-51		SIGNATURE OF CAA REPRESENTATIVE Bill S. Darling <i>Bill S. Darling</i>			DESIGNEE NO.

Figure 24.—Form ACA-1779, Application and Authorization for Ferry Permit.

PERIODIC AIRCRAFT INSPECTION REPORT (For All Aircraft, Including Lighter-Than-Air)									
1. AIRCRAFT		MAKE ACME		MODEL 644		SERIAL NO. 1300		NATIONALITY AND REGISTRATION MARK N 37377	
2. INSPECTION (INDICATE WHETHER AIRWORTHY OR NOT BY CHECKING (X) APPROPRIATE BLOCK)									
3. Fuselage—Hull Group			Yes	No	4. Cabin—Cockpit Group			Yes	No
a. Fuselage structure			X		a. Fuel system—tanks			X	
b. Fabric—skin			X		b. Oil system				
c. External bracing			X		c. Electrical system			X	
d. Control mechanism			X		d. Batteries				
e. Electrical system			X		e. Hydraulic system				
f. Hydraulic system			X		f. Instruments			X	
g. Fuel system—tanks					g. Flight—engine controls			X	
h. Emergency exits					h. Seats—berths				
i. Cargo compartments			X		i. Safety belts				
j. Rotor drive shafts					j. Fire-warning system				
k. Hull					k. Fire-extinguisher system				
l. Envelope					l. Heating—ventilating			X	
m. Gas bag					m. Windows—windshields			X	
n. Ballast tanks					n. Control car				
5. Engine—Nacelle Group			Yes	No	6. Landing Gear Group			Yes	No
a. Fuel system			X		a. Main landing gear			X	
b. Oil system—tanks			X		b. Tail—nose gear			X	
c. Ignition—electrical system			X		c. Latches				
d. Exhaust stacks or manifolds			X		d. Retracting mechanism				
e. Cooling system			X		e. Landing gear attach fittings			X	
f. Engine controls			X		f. Electrical system				
g. Power plant—general			X		g. Hydraulic system			X	
h. Superchargers					h. Wheels—brakes			X	
i. Heating—ventilating system			X		i. Floats				
j. Engine mount—attach fittings			X		j. Struts—attach fittings				
k. Engine accessories			X		k. Skis—fittings				
l. Engine cowling			X		7. Wing—Centersection Group			Yes	No
m. Main rotor transmission gear box					a. Fixed surfaces			X	
					b. Movable surfaces			X	
					c. Fabric—skin			X	
					d. External bracing				
					e. Wing attach fittings			X	
					f. Flight-control mechanism			X	
					g. Fuel system—tanks			X	
					h. Electrical system			X	
					i. Hydraulic system				
					j. Anti-icing devices			X	
					k. Gust lock mechanism				
					l. Main rotor blades				
8. Empennage Group			Yes	No	9. Propeller Group			Yes	No
a. Fixed surfaces			X		a. Propeller blades			X	
b. Movable surfaces			X		b. Propeller hub(s)			X	
c. Fabric—skin			X		c. Control mechanism			X	
d. External bracing					d. Attachment			X	
e. Attach fittings			X		e. Accessories			X	
f. Flight-control mechanism			X		f. Anti-icing devices			X	
g. Electrical system			X						
h. Hydraulic system									
i. Anti-icing devices			X						
j. Gust lock mechanism			X						
k. Tail rotor blades									
10. Radio Group (Installation)			Yes	No	11. Miscellaneous Group			Yes	No
a. Receiver			X		a. Position-light flasher mechanism			X	
b. Transmitter			X		b. First-aid—emergency equipment			X	
c. Antennas—insulators			X		c. Industrial and advertising installations				
d. Bonding—shielding			X		d. Pyrotechnics installation				
e. ADF receiver—loops					e. Water-injection systems				
f. Dynamotor			X		f. Oil-dilution system				
g. Auxiliary power unit									
h. Electronic devices									

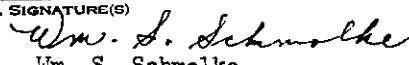
12. SIGNATURE(S)  Wm. S. Schmolke	CERTIFICATE NO.(S) AND RATING(S) A&E 11001	DATE May 9, 1956
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Figure 25.—Example of an inspection report used for airworthiness certification.

Manufacturer:	Registration
Piper Aircraft Corp.	No. 1234 A
Aircraft model: Piper PA-18	SAMPLE
Serial No.: 18-1234	
DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION Form ACA 132 (Rev. 7-1-46)	AIRCRAFT RECORD CARD
	16-49234-1 GPO

Figure 26.—Form ACA-132, Aircraft Record Card.

Form ACA-1706 (10-55)			U.S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION		
APPLICATION FOR ISSUANCE OF DEALERS' AIRCRAFT REGISTRATION CERTIFICATE(S)					
MAIL TO (Designed for use in window envelope)	Civil Aeronautics Administration Administrative and Records Branch, W-240 Washington 25. D. C.			1. Type of business <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Association <input type="checkbox"/> Partnership <input type="checkbox"/> Individual	
	2. Trade name of corporation, association, partnership, or individual ABC Aircraft Company			3. Address of principal place of business (Number, street, city, zone, State) 50916 West Moreland Blvd. Paloma 19, New Jersey	
4. Does the dealer meet U.S. citizenship requirements (See note 1) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			5. Amount of fee attached \$7.00 (See note 2)		
6. APPLICATION IS HEREBY MADE FOR: Dealers' Aircraft Registration Certificate(s) (Indicate how many) <u>Three</u> Special Flight Authorization for each Dealers' Aircraft Registration Certificate issued to permit flight testing prior to the issuance of a "Certificate of Airworthiness," Form ACA-1362. (See note 3) (X)					
7. I HEREBY DECLARE THAT THE FOREGOING STATEMENTS ARE TRUE AND CORRECT:					
Date 1-3-56	Signature of applicant <i>I. E. Neumann</i> I. E. Neumann			Title of office if application is made in name of corporation, association, or partnership Exec. Vice President	
- NOTES -					
1. A citizen of the United States means (a) an individual who is a citizen of the United States or one of its possessions, or (b) a partnership of which each member is such an individual, or (c) a corporation or association created or organized under the laws of the United States or of any State, Territory, or possession of the United States, of which the president and two thirds or more of the board of directors and other managing officers thereof are such individuals and in which at least 75 percentum of the voting interest is owned or controlled by persons who are citizens of the United States or one of its possessions. (Subsection (13) of Section 1 of the Civil Aeronautics Act of 1938). The holder of a Dealers' Aircraft Registration Certificate shall notify the Civil Aeronautics Administration, Washington 25, D.C., immediately of any change which affects his status as a citizen of the United States or otherwise affects his eligibility for a Dealers' Aircraft Registration Certificate. (502.6 Regulations of the Administrator)			2. The fee for the first certificate is \$5.00, and \$1.00 for each additional certificate requested subsequent to the issue of the first certificate. If all certificates (first, additional and subsequently issued certificates) have been permitted to lapse for a maximum period of 30 days, fees at the original rates must be submitted. The fee should be submitted with this application in the form of a money order or check made payable to the CAA, Department of Commerce.		
			3. Special flight authorization for production flight testing may be issued on the reverse side of the Dealers' Aircraft Registration Certificate in lieu of the standard Airworthiness Certificate. Aircraft manufacturers may obtain this authorization by placing an x or checkmark within the brackets opposite the request statement in item 6 when making request for Dealers' Aircraft Registration Certificates.		

Form ACA-1706 (10-55)

Comm-DC 30552

Figure 27.—Form ACA-1706, Application for Issuance of Dealers' Aircraft Registration Certificate(s).

ACA-283-3-4b Part I (8-54)

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The following comments are made with respect to special investigations and/or tests conducted by reason of instructions contained in section 18 of the referenced Type Inspection Authorization (not covered by regulations referenced herein), and are identified in accordance with the TIA numbering:

NOTE: List the results of special investigations by the same number as on the Type Inspection Authorization, Form ACA-316.

No. CP39-1WDate 7-27-55

Attachment A

to

Type Inspection Authorization
(Continued)

- (1) Blades, hub bodies and spiders, blade retention parts, parts that transmit motion when changing pitch, pitch stops, areas in spinners in vicinity of mounting bolts.
- (2) For steel blades, supplement the magnetic particle inspection by X-ray inspection if deemed advisable.
- (C) If assigned agent considers any other inspections necessary, please contact the Power Plant Branch, W-245.

III. General Information.

(A) Location of tests:

Items I(A)(1), I(B)(1), I(B)(2), I(C), and II will be conducted at the Aircraft Propeller Company test facilities at Smithville, Connecticut. Item I(B) (3) will be conducted at the Aircraft Engine Company test facilities at Johnsville, New Jersey.

- (a) Starting
- (b) Idling
- (c) Acceleration
- (d) Backfire characteristics
- (e) After-burning characteristics
- (f) Ignition

Determine rpm drop with engine operating on each magneto breaker alone and at the same time determine tendency toward detonation at appreciable power (at least 75% power).

Some of these characteristics can be ascertained during the endurance testing, however, the report submitted should discuss each of the above items in a special section entitled "Operation Test."

18.6 Teardown Inspection and Miscellaneous Determinations

Witness or conduct the following at the completion of the testing:

- (a) Weighing of the engine
- (b) Compression ratio check
- (c) Valve leakage test
- (d) General visual inspection
- (e) Magnetic particle inspection of highly stressed steel parts
- (f) Fluorescent inspection, or equivalent, of highly stressed nonmagnetic parts, including crankcase, cylinder heads and pistons
- (g) Measurement of parts as deemed necessary; the pertinent measurements should be specified on measurement sheets which show the original or "before test" measurements
- (h) Conduct any other inspections deemed necessary.

Special Notes

1. All operations are to be conducted with the minimum grade of fuel specified by the engine manufacturer. If detergent oil is used, the engine will be restricted to use that type of detergent oil only.
2. The endurance testing should be conducted with all accessory pads and drives loaded.
3. Conduct any other tests or inspections deemed necessary.

The Manufacturing Inspection Agent will please witness the following tests and inspections. In addition, if possible, personnel from W-245 or NY-245 will participate in the teardown inspection.

18.1 Calibration Test

Conduct a power calibration over the entire operating range maintaining average cylinder head and cylinder barrel temperatures within 50°F of maximum desired and oil inlet temperature within 10°F of maximum desired during the testing under maximum continuous and take-off conditions. Sufficient data should be obtained to enable construction of locked throttle fuel loops starting at T.O. power and speed, at M.C. power and speed, and at cruising power and speed, showing cylinder head temperatures, as well as the following curves at a mixture setting conforming to the specified full rich fuel consumption:

- (a) Constant speed curves (sea level performance chart).
- (b) Full throttle curve (where applicable).
- (c) Propeller load curve.

Curves (b) and (c) should show specific fuel consumption, as well as horsepower versus engine speed. The fuel loops and constant speed curves requested above, need not be rerun if sufficient previous data have been obtained.

18.2 Detonation Test

Conduct detonation characteristic tests over the entire operating range including mixture control runs at take-off power and speed, maximum continuous power and speed and at cruising powers and speeds. The maximum specified inlet air and oil inlet temperatures should be maintained during the test, however, a check should also be made with full cold carburetor air to ensure detonation free operation is obtainable under this condition. The cylinder head temperature should be set at the start of each curve in the full rich condition, and the cooling air conditions should then remain unaltered during the remainder of each curve. The cylinder head temperature net should be as high as possible but permit leaning to be accomplished without exceeding the maximum specified head temperature. During all other phases of testing, any indications of detonation should be noted.

18.3 Torsional Vibration Survey

Torsional vibration characteristics of this engine are considered similar to those of the O-340 engine; therefore, no additional torsional data will be required. Endurance testing will be required, however, at 2625 RPM at Full Throttle for 15 hours to substantiate the engine at resonant torsional conditions.

18.4 Endurance Test

- (a) 20 hours consisting of alternate periods as follows:

Figure 4.—Form ACA-316, Type Inspection Authorization (for engine)—Continued.

TIA CAL-3

- 2 -

July 2, 1955

18. (1) The Manufacturing Inspection Agent is requested to:

- (a) Determine the propeller high and low pitch stop settings and the feathered pitch setting.
- (b) Determine fuel tank sump capacity in most critical attitude.
- (c) Determine the make, model, and serial numbers of the oil radiators installed.
- (d) Ascertain quantity of undrainable oil in the radiator.
- (e) Ascertain that the following items of Pre-flight Type Certification Board Report, dated June 20, 1955, are completed before the conduct of the official flight test: B3w, B3y, B5e, and B6g.

(2) The Flight Test Agent is requested to:

- (a) Observe the fuel tank vent discharge pattern under various flight attitudes to determine that fuel or fumes will not enter the wing.
- (b) Investigate the automatic feathering feature of the propeller combined with the centrifugally actuated high pitch stop to determine that:
 - (1) The propeller can be feathered under conditions of sudden engine stoppage such as would be caused by ignition or fuel system failure.
 - (2) The propeller will not inadvertently feather under any normal operating conditions, including power off stalls at idling or zero thrust r.p.m.

The ability to feather under these conditions should be determined for the following flight configurations:

- (a) Take-off.
 - (b) Climb at Max. Cont. Power.
 - (c) Cruise, 67% Max. Cont. Power.
 - (d) Power off glide at maximum approach indicated air speed.
- (3) The fuel burning heater installation in its present configuration has not been approved engineering-wise and is not being presented for approval at this time.

Figure 3.—Form ACA-316, Type Inspection Authorization (for aircraft)—Continued.

FORM ACA-335 (7-28-47)		DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION		FORM APPROVED BUDGET BUREAU NO. 41-R051.1	
PROPELLER SUPPLEMENT TO APPLICATION FOR TYPE CERTIFICATE ACA-312				INSTRUCTIONS-The information required below constitutes a portion of the engineering data describing the propeller model for which application has been made for type certificate. This form should be submitted with Form ACA-312, Application for Type Certificate.	
1. NAME OF MANUFACTURER Acme Propeller Company, Inc.					
2. MODEL B201/O-86					
3. LIMITS			H.P.	R.P.M.	
MAXIMUM CONTINUOUS			185	2300	
TAKE OFF			205	2600	
4. DIAMETER 7 FEET 2 INCHES TO 6 FEET 8 INCHES					
5. STANDARD PITCH BASED ON 3/4 RADIUS (PITCH IN INCHES = 4.7 X RADIUS IN INCHES X TANGENT OF BLADE ANGLE AT 3/4 RADIUS.) Variable INCHES TO -- INCHES			6. BLADE SHANK SIZE 3 inches	7. BLADE AIRFOIL SECTION Modified Clark Y and NAC HL6 Series	
8. FIXED PITCH HUB DRILLING -- HOLES -- IN. DIA. ON -- IN. DIA. CIRCLE. HUB DIMENSIONS -- IN. DIAMETER -- IN. THICK					
9. HUB SHAFT SIZE SAE #20			10. BLADE MATERIAL 1/16 in. laminated maple, plastic covered		
11. TIPPING MATERIAL AND ATTACHMENT Stainless steel or monel attached with phosphor bronze rivets in thin tip sections and wood screws in thick section					
12. HUB MATERIAL Steel			13. NUMBER OF BLADES Two		
14. WEIGHT OF UNIT UNIT (Per blade; hub only; complete propeller; wood propeller without metal hub) Propeller complete with control unit POUNDS 60					
REMARKS (Denote type, i.e., controllable, two-position, constant speed, etc.) Constant speed - full feathering hydraulic - electric propeller. (NOTE: This form to be used as a supplement to Form ACA-312 for propellers only.)					
John C. Morse John C. Morse			July 2, 1955		
SIGNATURE			DATE		

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Figure 2.—Form ACA-335, Propeller Supplement to Application for Type Certificate ACA-312.

4. Airworthiness Certification

Number	Title
ACA-305.....	Application for Airworthiness Certificate and/or Annual Inspection of an Aircraft.
ACA-305a.....	Aircraft Inspection Report.
ACA-1362.....	Certificate of Airworthiness.
ACA-1779.....	Application and Authorization for Ferry Permit. Example of an inspection report used for airworthiness certification.

5. Dealers' Aircraft Registration

Number	Title
ACA-1706.....	Application for Issuance of Dealers' Aircraft Registration Certificate(s).
ACA-1707.....	Dealers' Aircraft Registration Certificate.
ACA-1707 (Reverse Side).	Manufacturer's Special Flight Authorization.
ACA-132.....	Aircraft Record Card.

of one to three digits, which will be preceded by the letter N when displayed on the aircraft. Only one such number will be issued to each exporter, to be used repetitively in connection with previously unregistered aircraft which are being exported. These numbers will be used only in connection with the flyaway delivery of aircraft which are being exported, and will be displayed only during that portion of the flyaway delivery which takes place over U. S. territory. In the event two or more aircraft displaying the same identification number may be flying in relatively close formation, each aircraft will be identified, insofar as radio contacts are concerned, by combining the identification number displayed with the last two digits of the manufacturer's serial number of the aircraft. For example, an aircraft displaying the

identification mark N2M and having manufacturer's serial number 203040 will be identified as N2M40. In order that the pilot may readily determine his radio call number, a placard bearing the call number of the aircraft should be displayed on the windshield or instrument panel in a location readily visible to the pilot. In this example, the placard would read N2M40.¹⁵

1.110 Removal of aircraft identification marks. When an aircraft of United States registry is sold to a citizen of a foreign country, the United States identification marks must be removed from such aircraft by the United States registered owner or his agent prior to its delivery to the purchaser.

¹⁵ See appendix A of this manual for a table of aircraft nationality markings.

Note: The reporting requirements of forms contained in this manual have been approved by the Bureau of the Budget pursuant to the Federal Reports Act of 1942.

ments of subparagraphs (1) through (3) of this paragraph shall be applicable to fixed-wing aircraft.

(1) *Wing surfaces.* Identification marks shall be displayed on the right half of the upper surface and the left half of the lower surface of the wing structure. As far as possible, the marks shall be located an equal distance from the leading and trailing edges of the wing. The top of the marks shall be toward the leading edge of the wing.

(2) *Vertical tail surfaces.* Identification marks shall be displayed on the upper half of the vertical tail surface. They shall be displayed on both sides of a single tail surface and on the outer sides of multitail surfaces. They may be placed either horizontally or vertically.

(3) *Fuselage surfaces.* Identification marks shall be displayed on the fuselage when the aircraft does not have a vertical tail surface. The marks shall be located on each side of the top half of the fuselage, just forward of the leading edge of the horizontal tail surface. They may be placed either horizontally or vertically.

(b) *Rotorcraft.* The requirements of subparagraphs (1) and (2) of this paragraph shall be applicable to rotorcraft.

(1) *Bottom fuselage surfaces.* Identification marks shall be displayed on the bottom surface of the fuselage or cabin. The top of the marks shall be toward the left side of the fuselage.

(2) *Side fuselage surfaces.* Identification marks shall be displayed below the window lines and as near the cockpit as possible.

(c) *Airships.* The requirements of subparagraphs (1) and (2) of this paragraph shall be applicable to airships.

(1) *Horizontal stabilizer surfaces.* Identification marks shall be displayed on the upper surface of the right horizontal stabilizer and on the under surface of the left horizontal stabilizer. The top of the marks shall be toward the leading edge of the stabilizer. The marks shall be placed horizontally.

(2) *Vertical stabilizer surfaces.* Identification marks shall be displayed on each side of the bottom half of the vertical sta-

bilizer. The marks shall be placed horizontally.

(d) *Spherical balloons.* Identification marks for spherical balloons shall be displayed on two places diametrically opposite, and shall be located near the maximum horizontal circumference of the balloon.

(e) *Nonspherical balloons.* Identification marks for nonspherical balloons shall be displayed on each side. They shall be located near the maximum cross section of the balloon, immediately above either the rigging band or the points of attachment of the basket or cabin suspension cables.

1.103 *Measurements of identification marks.* The measurements of identification marks shall conform to the provisions of paragraphs (a) through (d) of this section.

(a) *Fixed-wing aircraft.* The requirements of subparagraphs (1) and (2) of this paragraph shall be applicable to fixed-wing aircraft.

(1) *Wing surfaces.* The height of the identification marks on the wings shall be at least 20 inches.

(2) *Fuselage and vertical tail surfaces.* Identification marks shall be such as to leave at least a margin of 2 inches along each edge of the surface. Within these stipulations, the marks shall be as large as practicable, except that this rule shall not be interpreted as requiring the use of marks exceeding 6 inches in height or permitting the use of marks smaller than 2 inches in height. The letters and numbers of each separate group of identification marks shall be of equal height.

(b) *Rotorcraft.* The requirements of subparagraphs (1) and (2) of this paragraph shall be applicable to rotorcraft.

(1) *Fuselage or cabin bottom surfaces.* Identification marks shall be at least four-fifths as high as the fuselage is wide, but need not be more than 20 inches high.

(2) *Fuselage or cabin side surfaces.* Identification marks shall conform to requirements stipulated in subparagraph (a) (2) of this section.

(c) *Lighter-than-air aircraft.* The requirements of subparagraph (1) of this para-